Middle school teachers' use of iPads to support disciplinary literacy practice in the social studies classroom

Lisa Janezic

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ABSTRACT

MIDDLE SCHOOL TEACHERS’ USE OF IPADS TO SUPPORT DISCIPLINARY LITERACY PRACTICE IN THE SOCIAL STUDIES CLASSROOM

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Northern Illinois University, 2018
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This case study examined how middle school teachers combined technological, pedagogical, and content area knowledge together with a 1:1 iPad initiative to implement a disciplinary literacy approach to teaching social studies. Six teachers in a far northwest suburb of Chicago took part in text-based verbal protocol and standard interviews, allowed classroom observations, and completed self-report surveys as part of the data collection process. Data revealed that although the teachers did not recognize the term disciplinary literacy, they did incorporate these principles and practices into their classroom instruction. Although teachers identified content as more important in lesson planning over technology and pedagogy, the iPad was identified as a necessary tool for communication and sharing content and resources with students during and outside of instructional classroom time. The results of this study concluded with a model that provided a visual representation of the three interrelated constructs necessary for successful implementation of disciplinary literacy in the 21st century: inquiry-based curriculum, DL standards and practices, and district-supported technology. It was suggested that future research address a more in-depth look into teaching with disciplinary literacy in mind, and how teachers’ decision making with technology, pedagogical, and content knowledge impact instructional practices in the social studies classroom.
MIDDLE SCHOOL TEACHERS’ USE OF IPADS TO SUPPORT
DISCIPLINARY LITERACY PRACTICE IN THE
SOCIAL STUDIES CLASSROOM

BY

LISA JANEZIC
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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE
DOCTOR OF EDUCATION

DEPARTMENT OF CURRICULUM AND INSTRUCTION
ACKNOWLEDGEMENTS

The one person to whom I owe an infinite amount of gratitude would be Dr. Beth Wilkins who served as my mentor, cheerleader, and chair of my committee. I will forever be in debt to her for believing in me from the start and helping me achieve a life-time goal. I also owe a great deal of thanks to my committee members, Dr. Manderino and Dr. Ketsman. Michael for pushing me outside my comfort zone to think and do more than I thought I could, and Olha, for agreeing to join the journey long after the train left the station and supporting me through this process (while having two babies!). I cannot forget to thank my colleagues who agreed to participate in the study and especially “Professor” Susan McDonald who never tired of my stories and offered friendship and moral support whenever I needed it. Lastly, I cannot forget to extend my deepest gratitude to my husband, Jack, and my boys John and Jacob. You three always knew what I needed- whether a hug, words of encouragement, or a kick to get working. It took many individuals- too many to mention- to help me complete this degree, and to all of those not mentioned I express my most humble appreciation.
DEDICATION

To my parents and Jack, John, and Jacob
Without you, there is no me
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CHAPTER 1

INTRODUCTION TO THE STUDY

Throughout history humans have perceived technology as a tool which could transform the way people worked, learned, and lived (Reiser & Dempsey, 2012). The past century has been filled with extraordinary advances in technology. Computers, cellphones, laptops, tablet devices, and wireless Internet access technology have become ingrained in everyday lives, so much so that children born in this century have been dubbed “screenagers” (Rushkoff, 1999), “digital natives” (Prensky, 2001), or the “iGeneration” (Rosen, 2011). The current generation of students has never known a life without the Internet, Wi-fi, and digital devices of all sorts. No one could have predicted the major impact and influence technology has had on this century’s students’ everyday lives or their educational experiences. Today’s tweens (8-12-year-olds) spend an astonishing average of six hours per day on entertainment media, while teens (13-18-year-olds) spend an average of nine hours a day on entertainment media. These averages do not include using digital devices in school or for homework (Rideout, 2015). This cultural shift in how learners spend their time and how they communicate has led to a desire to transform the American educational system to prepare students for the 21st century (Project Tomorrow, 2013). However, even though students may be using and spending a great deal of time with technology, it is not necessarily in ways that engage them in the thinking and learning needed in school (Bennett, Maton, & Kivin, 2008). As a result, the digital revolution has prompted educational
leaders to reevaluate pedagogy, learning standards, and curriculum of schools to meet the needs of these tech-savvy students (U.S. Dept. of Education, 2010).

In 2009, the U. S. Department of Education organized a committee to meet the changing demands of a global society as well as the techno-centric trends that influence our students and subsequently developed the National Education Technology Plan (NETP). The expectation was that this plan would shape American students into global, independent, and competitive learners. The report expounded on the belief that with technology, educators could create and implement engaging learning experiences, assess students’ progress more authentically, and gather relevant student data while simultaneously engaging educators in collaborative professional development activities that enhanced teacher productivity and expertise (U.S. Dept. of Education, 2010).

While technology-based teaching and learning trends became in vogue at the national level, individual states, independent of the federal government, collaborated with the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) to develop the Common Core State Standards (CCSS) (U.S. Dept. of Education, 2010). States, along with educators, parents, and educational experts, developed a plan to address the challenges of educating 21st century students. The plan, which has been adopted by 45 states to date, set standards to ensure students will be career or college ready by high school graduation and will be able to compete in a globally, competitive marketplace. The standards, titled the “Common Core” outlined the literacy skills expected of American students by the time they graduated from high school. According to the National Governors Association (2010), the shift to the new standards required teachers to create student learning opportunities through use of the following activities:

1. Reading practice with complex texts and academic language
2. Reading, writing, and speaking activities using evidence from texts to support ideas
3. Building knowledge through content-rich non-fiction texts

Based on the tenets of the CCSS, the National Council of the Social Studies created the College, Career, and Civic Life (C3) Framework for Social Studies State Standards. This set of standards provided a curriculum guide for school districts and practitioners (NCSS, 2013). The development of the C3 framework was directly influenced by the disappointing outcomes of the National Assessment of Educational Progress (NAEP) achievement scores of 12th grade students. Despite the national trends in technology and a desire for national literacy standards, the NAEP reading assessment results showed that while American school students in grades 4 and 8 had improved reading scores since 1992, student scores in grade 12 had declined since 1992 and have remained stagnant since 2009 (U.S. Department of Education, 2013). These results and the need to create social studies classrooms that focus “building [student] understandings in a robust learning environment” (p. 83), steers teachers away from a lecture and book-based memorization of isolated facts to a skills and inquiry-based approach to teaching history.

The C3 framework organized social studies skills into four areas: civics, economics, geography, and history. The social studies content was left up to individual states, but the writers deliberately tied the framework to the Common Core Standards for ELA/Literacy. The C3 Framework is comprised of four dimensions: 1) Developing Questions and Planning Inquiries, 2) Applying Disciplinary Tools and Concepts, 3) Evaluating Sources and Using Evidence, and 4) Communicating Conclusions and Taking Informed Action.

Currently, the state of Illinois has established a set of learning standards based on the C3 standards. The Illinois standards have been divided into five sections: 1) Inquiry Skills, 2)

With all the attention being paid at the national, state, and local levels on student reading progress, how did this impact reading in the social studies classroom? Some scholars believe that basic reading skills acquired in elementary school are not sufficient for student academic success in subject-specific courses in the upper grades (Shanahan & Shanahan, 2008). As students progress through school, the literacy skills expected in content area classes, typically starting in middle school, are more challenging than the basic skills learned in the elementary grades. Teaching literacy skills in the content area demands a more diverse set of comprehension strategies and a wide variety of texts to make deeper connections with the specific skills of a discipline (Conley & Wise, 2011). This more advanced literacy skill set is needed as academic courses take on a more singular focus in middle and high school. The term disciplinary literacy best describes the shift from the basic reading to a more complex set of skills. Proponents of disciplinary literacy believe that “as academic subject matter becomes more complex and differentiated by disciplines, so must the definition of literacy” (McConachie & Petrosky, 2010, p. 15). It is the content area teacher, not the reading teacher, who creates a disciplinary literacy environment that allows students to engage in the “task, text, and talk” of real-life mathematicians, scientist, and historians (McConachie et al., 2006, p.8).

With each passing academic year, students confront an increasing demand regarding the types of reading and writing skills they need to be successful. A portion of this study focused on how middle school social studies teachers supported students’ progression in their path to disciplinary readers (see Figure 1).
According to Shanahan and Shanahan (2008), student literacy learning begins at the base of the “pyramid” with basic reading skills, advances to more complex reading tasks, and progresses to disciplinary literacy at the top of the pyramid. Disciplinary literacy skills encompass complex reading tasks demanded by content area classes such as math, social studies, and science. The subject matter, the vocabulary, and the literacy skills required of students in a specific discipline involve higher level thinking skills, as well as extension and application of knowledge (i.e. inquiry-based learning) beyond basic decoding and reading comprehension. Therefore, instead of a singular focus on infusing traditional generic reading strategies such as close reading, notetaking, and the use of graphic organizers into a content area classroom, teachers should also be examining how the practices of reading, writing, thinking, and communicating in a discipline drive the literacy needs of instructional practice (Moje, 2008).

With the implementation of the CCSS and the C3 Framework, school administrators and content area teachers needed to re-evaluate the way curricula are written and lessons are constructed. The C3 Framework demands a skills-based orientation which is a shift from the
traditional way content area teachers view their teaching practice (Kenna & Russell, 2014).

When teachers incorporate disciplinary literacy practices in the classroom, it naturally follows that they are addressing the CCSS, which places an emphasis on expository texts and integration of literacy skills in all subject areas, thus embedding disciplinary literacy learning in the CCSS (Zygouris-Coe, 2012). Technology, when combined with disciplinary literacy practices, will further students’ progress towards CCSS and C3 goals (Kenna & Russell, 2014; Moje, 2008).

Along with addressing the new standards, school districts across the nation are combining skills-based curriculum along with technology trends by re-writing curriculum and learning outcomes. Many districts are increasing money and time to train and support teachers to become more proficient at integrating technology in their classrooms to meet the new standards.

Technology budgets have exploded with the purchases of the latest laptop or tablet technology. One current trend is to purchase a device for every student (Holcomb, 2009). These initiatives, labeled one-to-one or 1:1 technology initiatives, “provide every staff member, teacher and student with a portable laptop, notebook or tablet PC for continuous use both in the classroom and at home” (Center for Digital Education, 2004). One-to-one initiatives funded by the schools eliminate the barriers associated with technology in schools, such as lack of available resources or scheduling issues (Palmer, 2010). 1:1 programs give all students the ability to connect with the Internet and access available resources with a selected device (i.e. laptop or tablet). Knowing all students have equal access to technology or similar devices supports teachers’ integration of technology into the curriculum.

The impact of 1:1 implementation with iPads in a school district 30 miles northwest of Chicago provided the impetus for this study. The purpose of this case study was to examine teachers’ practices of disciplinary literacy based on Common Core and C3 Framework standards,
as well as the convergence of content area knowledge, pedagogy, and 1:1 technology in the middle school social studies classroom. With in-depth interviews, teacher self-reports, classroom observations, and analysis of artifacts (digital and text), the researcher interviewed, observed, and recorded the opinions and experiences of six middle school teachers as they combined disciplinary literacy practices and iPad technology into their social studies instruction.

**Conceptual Frameworks**

Considering the multiple aspects underpinning this research study, there are three conceptual frameworks that defined this research. The first framework was a combination of the DL principles by McConachie and Petrosky (2010) and Moje’s (2015) 4E DL heuristic for teaching in the classroom as a basis for understanding teacher’s perceptions and practices. The second framework was Starkey’s (2010) updated model of digital teaching of teacher pedagogical reasoning and action used to determine technological practices in the classroom. The third and final framework was Mishra and Kohler’s (2012) TPACK framework which provided a model to explore the independent and intersecting domains of technological, pedagogical, and content knowledge. These frameworks will be explained next, but also more in-depth in Chapter 2.

**Principles and Practices of Disciplinary Literacy**

The first supporting component in this study combined the principles and practices of DL together. The principles support the philosophy behind DL, while the heuristic provides the framework for understanding DL in practice. The five principles of DL are

1. Knowledge and thinking must go hand in hand.
2. Learning is apprenticeship.
3. Teachers mentor students.
4. Instruction and assessment drive each other.
5. Classroom culture socializes intelligence. (McConachie, et al., 2006)

These principles provide guidance for teacher of the underlying tenets of DL. With these principles in mind, teachers can focus on the reading, writing, thinking and communicating aspects of social studies or any content-area lesson.

Combined with the principles was Moje’s (2015) heuristic representation, which illustrates how DL supported practice should be implemented in the classroom, (see Figure 2).

![Figure 2. 4Es heuristic with disciplinary practices. (Moje, 2015).](image-url)
This model defines the constructs of disciplinary literacy concepts and practices. Moje (2015) has combined the essential teaching practices with disciplinary practices into a composition of 4Es: engage, elicit/engineer, examine, and evaluate. These constructs represent solid DL practices which incorporate the skills and practices of a discipline. These practices would be evident in a classroom which engages in disciplinary literacy-based learning. One could expect to see lessons based on the 4Es to include students engaging in disciplinary practices (talk, using text, and modes of communication) of social scientists. DL is rooted in the inquiry-based model which embraces a cycle that begins with a question, moves to data collection and analysis, and ends with support and communication of claims. While students are engaged in this process, the teacher would be helping students locate, examine, and evaluate sources of information. The teacher would take these resources and engineer a learning experience to address students’ needs. Once students communicated their findings and supported their claims with evidence, the teacher would assess student learning and use the results to create new lessons. The cycle would then repeat itself from the beginning. This heuristic could also be a guide to evaluate where teachers are in the process of incorporating DL practices into their instruction.

Teaching and Learning in the Digital Age

Starkey’s model of pedagogical teaching and learning in the digital age (2010) extended Schulman’s (1987) original model by adapting the teaching and learning component to include teacher construction of learning experiences with technology that enables students to build their own knowledge and make connections with the content and other learners (see Figure 3). A fundamental change in this model “is the underpinning idea of student creating knowledge in the
digital era through connections…[in] curriculum, rather than the teacher transmitting the ‘truths’…of a subject according to a prescribed curriculum” (Starkey, 2010, p. 239). The teacher, as an expert in content knowledge, creates learning experiences for students with an understanding of student interest and ability. These experiences are then evaluated and analyzed by the teacher who revises future learning based on results of assessments. The cycle repeats itself after the teacher reflects and builds a new understanding of what her students need.

Table 1
Starkey’s Model of Teacher Pedagogical Reasoning and Action of the Digital Age

| **Comprehension** of subject knowledge (content knowledge) includes: |
| Substantive knowledge (concepts and principles) and syntactic knowledge (subject methodologies) enable connections. |
| **Enabling Connections:** |
| Preparation for teaching (pedagogical content knowledge) include: |
| Selecting appropriate resources |
| Transforming existing knowledge into teachable content |
| Enabling opportunities for student to create, critiques, and share knowledge |
| Enabling connections between groups and individuals to create, critique, and share knowledge of subject |
| Adaptation and tailoring (personalizing) learning for the student being taught |
| **Teaching and learning:** (knowledge of context) include: |
| Formative and summative evaluations of student learning with feedback to students (from a variety of sources), and modification of the teaching process where appropriate |
| **Reflection:** |
| Reviewing and critically analyzing teaching decisions based on evidence |
| **New Comprehensions** are made: |
| About the subject, students, and teaching |
The focus shifts the learning away from the teacher driving the content and towards students individualizing the learning experience to create their own knowledge. The teacher in this new model assists students in making their own connections using technology rather than using traditional teaching methods in which students relied on the teacher to decide what is worth learning and delivering the content via lecture or textbook.

Starkey’s model has direct ties to DL principles, practices, and the TPACK model (Mishra & Koehler, 2006). The TPACK model takes Starkey’s process and combines teacher content, pedagogical, and technological knowledge to create a foundational model for student-centered learning experiences.

**Technological, Pedagogical, and Content Knowledge (TPACK) Model**

The third component which supported this study was the TPACK model developed by Mishra and Koehler (2006). This model exemplifies the “interplay among three main components of learning environments: content, pedagogy, and technology” (Mishra & Koehler, 2006, p. 1017). The TPACK model (See Figure 3), which builds on Shulman’s (1986) design of teaching components which delineates the two types of knowledge effective teachers have, those being content knowledge and pedagogical knowledge. The intersection of a middle school social studies teacher’s content knowledge, pedagogical knowledge, and technological knowledge are the constructs that guide the questions posed in this study.
The TPACK framework reflects the interdependence of the elements that influence lesson planning and implementation. This framework provides a focus on the elements that teachers consider when planning quality instructional lessons. Mishra and Kohler’s model teases out the technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK) and the crossover of each of these foundational constructs: technological pedagogical knowledge (TPK), technological content knowledge (TCK), and pedagogical content knowledge (PCK). These three aspects overlap into the final construct: technological, pedagogical, and content knowledge (TPACK).

Together, disciplinary literacy principles and practices, pedagogical reasoning and action, and the constructs of the TPACK model provided the basis for this study. All three concepts addressed how teachers used content knowledge, pedagogical methods, and technology to address the goals they had for themselves and their students. Disciplinary literacy addressed the “how” of teaching, while the Model of Pedagogical Reasoning and Action addressed the process, evaluation, and future planning of the teaching. The third framework, the TPACK model,
addressed the combination of the “what” (content) the “how” (pedagogy) and “through what means” (technology) a middle school social studies teacher would employ to address disciplinary literacy practice and the C3 Framework in the classroom.

In summary, this study explored the intersection of these frameworks. It attempted to understand how teachers defined and/or implemented DL in their instruction. It also asked the questions of how teachers combined their pedagogical, technological, and content knowledge together with current technology in the digital age in a way which addresses DL principles and practices in their classroom. And lastly, it examined how teachers used iPad technology to address teaching and learning objectives in their instruction. By looking through the lens of three frameworks, it may be possible to combine all the constructs together to make sense of how middle school teachers put all the pieces of this puzzle together to create inquiry-based, historian-based, and 21st century skills-based experiences for their students.

Problem Statement

Current educational practice supported by the CCSS emphasizes the need for students to learn, apply, and recognize the role of technology in their learning (National Governors Association, 2010). Classroom teachers are encouraged and often expected to use technology not only in their day-to-day classroom, but also to combine pedagogy and practice together with technology to create digital or virtual environments that promote student interaction. To meet the demands of new standards, student needs, and demands for tech-savvy students, many school districts have adopted 1:1 laptop or tablet technology initiatives. These programs provide one device per student in order to establish an equitable technological foundation and 24-hour access to up-to-date resources for all students (Penuel, 2006).
Past research about the use of 1:1 technology and digital learning environments has focused on barriers to adoption, teacher attitudes, and hardware/technical issues (Hew & Brush, 2007; Keengwe, Onchwari, & Wichita, 2008; Penuel, 2006). Some studies have focused on teachers’ beliefs and obstacles to implementation (Hutchinson & Reinking, 2011) while other research has shown that 1:1 laptop technology had a positive impact on student engagement and learning (Keengwe, Schnellert, & Mills, 2012; Lowther, Ross, & Morrison, 2003). Research around iPad initiatives has focused on very broad topics such as positive impact on student learning, student engagement, teacher opportunities for enhanced learning, and challenges for both groups (Gallagher et al., 2015; Chou, Block, & Jesness, 2014). There remains a paucity of research focused on technology in content area classrooms, specifically middle school social studies, and teachers are using iPad technology to enhance disciplinary literacy practices.

There is an immediate need for empirical research in the practice and adoption of technology at the middle school levels and how teachers create and deliver lessons based on the understanding of disciplinary literacy practices, content knowledge, and technology such as the iPad. A new emphasis on the role of technology and its capacity to create digital learning environments to meet the needs of new standards and preparing students for the 21st century digital future requires consideration of all stages of curriculum implementation from planning to instruction to assessment (Holcomb, 2009). According to Mishra and Kohler (2006), “Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy” (p. 1029). To understand the interaction between these three elements, additional research is needed to explore how teachers understand DL and implement lessons founded on the interplay between content knowledge, disciplinary literacy practices, and iPad technology.
Technology changes rapidly and current research struggles to stay ahead of the curve. Many new devices become available and are purchased before empirical evidence is published. The iPad is one device that is increasingly popular in schools across the nation despite the lack of evidence that it is more effective in the classroom than laptops or desktop computers. And despite the lack of solid empirical evidence of the positive impact on student performance (Zucker, 2004), school districts are making million-dollar purchasing decisions involving technology like laptops or tablets. There is a demand that teachers learn to adapt their pedagogy and practice to maximize learner outcomes, often without the proper professional development (Dunleavy, Dextert, & Heinecke, 2007; Palak & Walls, 2009). This study addressed the need to understand how 1:1 programs, specifically the iPad device, were used by middle school teachers to plan and implement lessons which meet C3 social studies standards. The defined purpose of this study was to examine how middle school social studies teachers integrated pedagogy and content area knowledge together with iPad technology to advance disciplinary literacy principles and practices into their instruction.

Research Questions

In this study, the following research questions were addressed:

1. What are middle school social studies teachers’ perceptions and practices of disciplinary literacy?

2. How do middle school social studies teachers integrate technological, pedagogical, and content area knowledge together in their instruction to support disciplinary literacy practices?
3. How do middle school social studies teachers integrate iPad technology into their instruction?

Significance of the Study

The results of this study will contribute to the growing research base needed for knowledge related to DL and how these principles correlate with the C3 social studies standards. It will inform teacher and school districts how imperative it is to develop a curriculum which addresses DL principles and practices. Teachers will be able to use this case study to observe exemplars on how to incorporate DL into their social studies instruction. This study will also offer examples of how teachers effectively use iPads in their classrooms to communicate with students, assess student learning, and provide content inside and outside of the classroom. It would also be advantageous for school districts and administrators to use these results to gain insight into how an actual 1:1 adoption can be implemented and effectively provide continuous support for teachers.

Methodology

A qualitative comparative case study approach served as the method of data collection for this study to see “how people [teachers] interpret their worlds, and how we [the researcher] can, in turn, interpret their interpretations” (Shank, 2002, p. 81). The participants, six middle school teachers, participated in initial one-to-one interviews. Three of the six participants agreed to participate in the next phase which included classroom observations, teacher self-reports, and artifacts such as lessons plans, teacher-created materials, and links to classroom and external websites. The data were gathered and analyzed over a 21-week period or two grading quarters.
Data analysis included a two-step coding process as outlined in Chapter 3. Triangulation of data, or the use of several sources of data to support the findings of the study, enhanced the validity of the results (Creswell, 2009). It was the goal of this study to provide a multi-faceted view of the content, pedagogical, and technological knowledge teachers employed while implementing iPad technology to support content area DL practices.

Organization

The study is organized into five chapters. Chapter 1 introduces the topic and provides a purpose and a problem statement in addition to an overview of the methodology and conceptual framework of the study. Chapter 2 provides an in-depth review of the literature of disciplinary literacy, topics related to implementation of disciplinary literacy in the social studies classroom, 21st century literacies, and the three conceptual frameworks which underpin this study. Chapter 3 describes the participants, research, design, data collection, and analysis. Chapter 4 presents the findings. To conclude, Chapter 5 describes the implications of the results and recommendations for future research.
CHAPTER 2
REVIEW OF THE LITERATURE

This first section of this chapter includes a summary of new literacies, the definition and purpose of disciplinary literacy (DL) in the content area classroom, the conceptual frameworks that supported the segment of this study that explored social studies teachers’ perceptions and their knowledge and use of DL-based instruction. The first section concludes with common beliefs teachers have about DL and scholarly opposition to these practices in the classroom.

The second section of the review focuses on the role of technology in the social studies classroom. The chapter concludes with an explanation of the conceptual framework that underpinned this study including, Moje’s (2010) Heuristic for DL, Shulman’s (1986) and Starkey’s (2010) models of pedagogical reasoning, and a description of the TPACK model (Mishra & Kohler, 2006).

Adolescent and New Literacies

Adolescent Literacy

Current trends in educational research over the past decade have shown an increased interest in the areas of adolescent literacy and Common Core State Standards (CCSS) (Cassidy & Ortlieb, 2012). There has also been a growing trend in the new millennium to distinguish the differences between basic reading skills and the unique content-focused literacy skills needed by middle school and high school students (Cassidy, Valadez, Garrett, & Barrera, 2010; Lee &
Spratley, 2010). The International Literacy Associations’ Commission’s or ILA (Formerly known as the International Reading Association or IRA) revised definition of adolescent literacy is stated as the “ability to read, write, understand and interpret, and discuss multiple texts across multiple contexts” (p. 2). As a result, the unique literacy needs of adolescents, there are four suggested themes for research on adolescent literacy (Moje, Young, Readence, & Moore, 2000). These themes are

1. Adolescents have multiple literacies.
2. Adolescents interact with texts in multiple ways and with multiple mediums: the Internet, film, television, music, magazines, etc.
3. Literacy plays an important role in developing adolescent individual and social identities.
4. Adolescents need school time to support these interactions with multiple literacies and interactions with teachers and peers as well. (p.402)

These themes highlight the differences between the needs of the adolescent learner versus primary grade or adult learners. These unique behaviors and habits should be kept in mind when writing curriculum or planning lessons for adolescent learners. Fang and Coatoam (2013) also suggested that the time for students to begin to focus on the more technical knowledge of a discipline around the age of nine. This is supported by Shanahan and Shanahan’s (2008) theory of adolescent literacy.

**New Literacies**

The dawn of the Internet and new communication technologies have undeniably impacted the definition and practice of literacy in schools. Leu et al. (2004) asserted that
“throughout history, literacy and literacy instruction have changed regularly as a result of changing social contexts and the technologies they often prompt” (p. 1574). Technological advances in the 21st century have created a need to re-define and broaden the understanding of literacy practice and instruction. The change from traditional print-based texts to computer-based messaging, blogging, videos, or even podcasts call for a redefinition of literacy. It follows that “new technologies require new literacies” (Leu, et. al, 2004, p. 1570). The very meaning of literacy has been in flux since the introduction of new technologies. As early as 1996, The New London Group coined the term multiliteracies to address the changing landscape of reading and writing that included multiple forms of communication and representation of language (New London Group, 1996). Moje’s (2009) view of the research suggested that students “engaged with new media…have demonstrated that these engagements appear to demand or produce different ways of thinking, different literate practices, and different social practice” (p. 353). The definition of literacy has broadened beyond text-based forms to include visual and digital modes of communication.

Despite the educational systems’ best efforts, Alvermann (2002) has argued that adolescents’ literacy skills are not “keeping pace with societal demand of living in an information age that changes rapidly and show no sign of slowing” (p. 189). Even the use of computers in classroom for reading activities online requires the use of a highly-specialized set of skills involving prior knowledge and comprehension that is not present in traditional text reading (Coiro & Dobler, 2007).

These new literacies played directly into the skills necessary for the workplace of the 21st century. Students need to practice and develop skills that will allow them to work collaboratively with others to identify and solve problems, synthesize and evaluation large
volumes of information, and communicative efficiently and effectively with others (Leu, et al., 2004). Teachers may falsely assume that students are coming into the classroom with these necessary skills because of their exposure to technology, but Karchmer-Klein, and Shinas (2012) remind teachers to “keep an eye on the moving target” (p. 289), recognize the complexity of new literacies, and reconsider assessment methods to meet the needs of students. Teachers need to create learning environments that engage students in meaningful “subject matter projects that both extend and elaborate on the literacy practices they already own and value” (Alvermann, 2002, p. 189). Disciplinary literacy practices provide a way for teachers bridge the gap between technology and 21st century social studies skills.

**Literacy, CCSS, and the C3 Framework**

Regardless of the philosophical underpinnings, the CCSS and the C3 framework addresses the specific needs of adolescent students, together with reading, writing, speaking, listening, and language arts skills (Zygouris-Coe, 2012). This combination of skills substantiates the recognition that literacy is a priority across all disciplines. The specific requirements of social studies addressed by the CCSS include engaging students in disciplinary inquiry, defining key practices in the field, accessing information in multiple forms and in multimodalities, and encouraging discussion and writing around topics (Manderino & Wickens, 2014).

The C3 framework, which supports the literacy standards contained in the CCSS, specifically addresses the social studies skills that need to frame student learning in social studies. According to these standards, students should learn how to develop inquiry questions, plan the inquiry, gather appropriate sources to support the questions, be able to use evidence to support their claims, and become adept at communicating and critiquing the conclusions of the
inquiry (NCSS, 2013). In addition to these skills, the C3 framework outlines standards in the areas of geography, economics, civics, and history. Each of the following dimensions are comprised of basic skills and standards:

- Dimension 1: Developing Questions and Planning Inquiry
- Dimension 2: Applying Disciplinary Concepts and Tools
- Dimension 3: Evaluating Sources and Using Evidence
- Dimension 4: Communicating Conclusions and Taking Informed Action (NCSS, 2013)

Under each dimension are additional sub-headings which emphasize the use of primary and secondary sources, and connections to the CCSS. The state of Illinois has adapted the C3 framework into its own set of standards which are required to be in place by fall 2017.

Not only are inquiry and communication skills part of the new standards, but include research-based findings that have shown that as adolescent students transition from elementary level basic reading skills (learning to read), the demands on their literacy skills increase to more subject specific content area reading (reading to learn) in middle and high school (Lee & Spratley, 2010). These needs have produced more demanding standards in content area classrooms, and as schools prepare students for success in the real-world of changing job markets, in the absence of strong literacy skills, it is a concern that students will be unable to compete in a global economy (Shanahan & Shanahan, 2008). This concern of global economic competition which influences public policy, and when combined with the demands of a technologically-based competitive society, has had a definite impact on how and what teachers are expected to do in the classroom. (Leu, Kinzer, Coiro, & Cammack, 2000).
**Reading Historical Texts**

As the demands of the curriculum change, social studies teachers may find it challenging to provide lessons which teach students to read, comprehend, and analyze historical texts. Teachers themselves may not have the background knowledge or the analysis skills necessary for in-depth analysis of historical events and texts (Cowgill & Waring, 2017). It is also clear from research done by Wineburg, (1991) that students need to interact with texts. It is not enough for students to merely read primary sources, they must question, interact, and build their own understanding of history using primary source text and visuals. Current social studies classrooms must become “a place to explore the complex cognitive processes we use to discern pattern and significance in the past” (p. 518).

The skills needed to participate in historical inquiry are different than other academic skills and it presents specific challenges due to how students construct understanding of historical events. Individual learner attributes such as background knowledge, personal beliefs, or biases all impact how historical inquiry is approached and carried out (Wineburg, 1991). Historical inquiry is the basis for the principles and practices of DL and it is at the middle school level that students become more adept and can begin to develop critical analysis skills (Dutt-Doner, Cook-Cottone, & Allen, 2007). The role of the teacher and student in a DL-based classroom look very different from the traditional lecture and note-taking history classrooms of the past.
Disciplinary Literacy

The generic term of literacy is not specific enough for to describe the reading, writing, and speaking skills necessary for literacy in the content area classroom. “In light of resistance to content area literacy efforts, research in the early 21st century has shifted from a generic conception of content area reading to disciplinary literacy” (Dobbs, Ippolioto, & Charner-Laird, 2016, p. 132). Literacy skills in the content area classroom have become more than just add-ons to the curriculum, they are an integral part of the teaching-learning process as and “are central to the CCSS” (Zygouris-Coe, 2012, p. 36) and the C3 framework standards. Therefore, it makes sense that literacy in the disciplines or DL demands its own specific definition.

Research has delineated a distinct difference between generic literacy skills and those of DL. Literacy skills, in the broader sense, are used across all disciplines and involve general reading and comprehension practices that can be applied to any of the content areas. Disciplinary literacy, in contrast, is subject-specific and promotes the “ability to engage in social, semiotic, and cognitive practices consistent with those of content experts” (Fang, 2012, p. 19). Disciplinary literacy involves very distinct ways of addressing the unique vocabulary and knowledge necessary to communicate in a specified content area. Moje (2008) suggested that DL practices allowed students to gain “fluency in a wide range of ways of constructing and communicating knowledge” (p. 99) in a variety of disciplines such as math, science, and the social sciences. It is more than just the ability to read and comprehend content areas texts; it is the ability to engage in thinking, doing, and communicating like a real-life mathematician, historian, or scientist (Shanahan & Shanahan, 2012). Teachers are tasked with the role of “teaching students to be informed readers, writers, and thinkers about the past as well as the
present” (Wineburg & Martin, 2004, p. 45). The focus of each content area classroom would be on how experts in each field read, write, speak, and communicate about their subject matter.

Disciplinary language is unique because of the nature and the kind of knowledge that is being created by each subject area texts requires a different set of literacy skills. Research has analyzed how experts in the fields of math, science, and history interact with text revealed how different subject areas require different sets of literacy skills (Johnson, Watson, Delahunty, McSwiggen & Smith, 2011; Lee & Spratley, 2010; Shanahan & Shanahan, 2008). Mathematicians favored close careful reading of texts, paying careful attention to vocabulary, symbols and syntax, while science experts were likely to value converting written text into charts, graphics, and illustrative examples. Historians were more likely to read multiple primary source texts about an event and analyze the source and historical context of the written work. These differing skill sets have influenced a change in the perspective in how content area teachers should address literacy in the content area classroom.

Johnson, et al. (2011) found that students developed disciplinary knowledge and habits “by engaging in the literate habits valued by and used by experts in that discipline” (p. 101). This ideology brought with it a conundrum in of itself, for to be able to construct knowledge and communicate in a discipline, students needed to have basic content knowledge in the subject. To gain content knowledge, students needed to read subject-specific text. But if students could not understand the text, it is likely students also experienced difficulties learning the content (Lee and Spratley, 2010). Strong reading comprehension skills are necessary to build content knowledge, therefore essential for DL practices.

The challenge for content area teachers is to balance the knowledge of a discipline with the skills needed to practice in the discipline. Since many adolescent readers do indeed struggle
with basic comprehension and writing skills, it is important for teachers to apply general strategy instruction along with disciplinary-specific instruction. Many students need a base of prerequisite skills before they are ready to develop more sophisticated literacy practices of a discipline (Faggella-Luby, et al., 2012).

It may be possible to address both DL and struggling readers with instruction that addresses these deficiencies and careful scaffolding of skills that gradually build student independence and self-efficacy while using content-specific text and practice within the classroom. Social studies teachers may be the best teachers for this task, given that they understand the link between reading historical texts and comprehension of historical reasoning and content (Lee & Spratley, 2010). Some research has shown social studies teachers were successful with combining intermediate reading strategies and DL skills (Dobbs, Ippolito, & Charner-Laird, 2016).

The solution to this challenge also lies in building disciplinary knowledge from within the discipline’s practices. Disciplinary literacy skills are not created by pushing in comprehension strategies from outside the discipline, but from within the discipline itself. There should not be a generic set of reading strategies applied across all disciplines. “The teaching of DL should be embedded in disciplinary study” (Shanahan & Shanahan, 2017, p. 19). Literacy practice in the content area classroom should be part of the regular curriculum and make use of a variety of forms of texts, read for varying purposes, in a multitude of learning situations (Alvermann, 2002). Disciplinary literacy practices can maximize content acquisition and reinforce individual student knowledge as well as help prepare students for future pursuits of knowledge in the field (McKenna & Robinson, 1990). Moje (2015) suggests making inquiry and discourse of a discipline the main focus of teaching and learning in a content area classroom.
Practicing a discipline, using vocabulary of a discipline, and engaging in thoughtful inquiry while the teacher guides learners is the key to developing successful skills in students. By focusing on five core constructs of DL: epistemology, inquiry-based practices, overarching themes, various types of texts, and discourse structures, teachers can tailor their practice to address disciplinary goals for students (Goldman, Britt, Brown, Cribb, George, Greenleaf, et. al., 2016). Even though “some teachers are beginning to receive training in DL approaches in teacher preparation programs, they still often learn general strategies for supporting literacy” (Dobbs, Ippolito, & Charner-Laird, 2016, p. 133). Johnson, Watson, Delahunty, McSwiggen & Smith (2011) liken the role of the teacher in a DL-based classroom to that of a builder who apprentices her students in the construction of knowledge in the discipline of social studies. They urge teacher preparation programs to assist new teachers and ask veteran teachers to “be literate in these ways [of the discipline] …to apprentice their grades four through 12 students in the discipline” (p.107). This leaves a clear goal for pre-service and current teachers to strive for in their instructional practices.

**Disciplinary Literacy in Social Studies**

Teachers looking to infuse literacy practice within the content area classroom should model comprehension skills, incorporate multiple literacies into the curriculum, use authentic texts, use assessments to inform instruction, and make connections across the content areas (Conley & Wise, 2011). These practices in any content area classroom help students become strong, independent readers and thinkers; all the goal of the CCSS and the C3 framework.

In social studies, the goal is to create “knowledgeable, thinking, and active citizens” (NCSS, 2015, p. 5). Specifically, in the social studies content area, historical analysis and writing
of interpretation of primary source documents are also components of DL. Successful analysis of primary source documents for middle school students involves building student prior knowledge of a topic and students’ historical understanding of events and context (Dutt-Doner, Cook-Cottone & Allen, 2007). Focusing on writing about primary source documents encourages students to interpret historical writings and use evidence from the text to support reasoning (Monte-Santo, 2010). These skills are at the core of the C3 framework standards and overlap with the principles and practices of DL practice in social studies.

Engaging social studies students in the practices and language of the discipline can have a positive impact on student involvement and independent thinking in the classroom. Teachers can develop students’ skills by using literacy “as a tool to support the construction of content knowledge” (Macphee & Whitecotton, 2011, p. 267). Teachers can create classroom environments in which “learners interact everyday with each other and the content they are learning through civic, critical, and reflective discourses” (Macphee & Whitecotton, 2011, p. 267). Teaching methods which engage students in the subject, such as the inquiry-based learning model, encourage students to become independent learners and lead to the development of literacy skills and content area knowledge (Norton-Meier, Hand, & Ardasheva, 2013).

Dutt-Doner, Cook-Cottone, & Allen (2007) studied the ability of middle school students to construct meaning from primary source documents. What they found was that “background knowledge, document analysis skills for both written and images, the ability to integrate background knowledge, and historical thinking all contribute to the successful use of documents” (p. 11). Teachers who encouraged students to engage in authentic interaction with primary sources supported practices of real-life historians.
There has also been curriculum developed that begins to address the shift towards DL practices for middle school students. Duhaylongsod, Snow, Selman, & Donovan (2015) examined the effectiveness of a curricular program called Social Studies Generation (SoGen). They found that by presenting students with high-interest materials, engaging them in active discussions and debates, students could begin building their skills as real-life historians. It was recognized that this may have been DL “light” (p. 604), but it was a start in the right direction for supporting students in the middle school social studies classroom.

Scholarly Opposition to Disciplinary Literacy

Regardless the proponents’ beliefs in DL, there is respectful scholarly dissent to the idea of true DL being taught at the middle school and high school levels. Heller (2010) argued that most middle and secondary teachers are not experts in their own disciplinary fields; therefore, it makes it difficult for them to understand how experts in their fields exercise literacy practices. Heller stated that too much focus on individual and narrow disciplines would take away students’ opportunities to become well-rounded, broadly based thinkers, and the real work of subject-specific discipline skills should wait until college. Others cautioned that focusing only on higher-level reading and writing practices may do more harm than good, leaving struggling readers behind as the skills necessary for true DL practice become overwhelming for students struggling with more basic reading and writing tasks (Faggella-Luby, Graner, Deshler, & Drew, 2012). Moje (2010) agrees that middle and high school won’t create mini-scientists or historians, but should be the start of creating critical thinkers capable of understanding and critiquing texts.
Whether in favor of or against the principles and practices of DL, and the depth at which content area teachers the middle or high school level employ this ideology, obstacles still remain against general literacy practices in the content area classroom.

**Teacher Opposition to Disciplinary Literacy-based Instruction**

Research has also shown that there are barriers which obstruct teachers’ beliefs and practices of DL. These barriers included content area teachers’ false beliefs that it is too time consuming, that this practice interferes with the content of a course, and that it is not an efficient way to distribute knowledge to students (Moje, 2008, O’Brien, Stewart, & Moje, 1995). Teachers may misunderstand and underestimate the comprehension difficulties students have with content area texts, or be reluctant to teach basic reading strategies because it infringes on time spent teaching content. Generic reading strategies may insufficient or inadequate to meeting the needs of their students. Teachers may also see generic reading strategies as taking up valuable teaching time and inappropriate for their content area (Bain, 2012; O’Brien, et al., 1995; Zygouris-Coe, 2012).

Content area teachers may also falsely believe that reading and writing is the domain of the English and language arts departments not that of the math, science, or social studies teachers (Bain, 2012). Teachers should be encouraged to view the instruction of reading and writing within their discipline as one way to maximize content acquisition and to recognize that students with strong content literacy skills extend their understanding of the content even after the course has ended (McKenna & Robinson, 1990). Providing preservice teachers with courses that combine content area knowledge methods with literacy methods appears to be a successful way to begin changes some of the attitudes about reading and writing being the sole responsibility of
the English departments (Bain and Moje, 2012; Pytash, 2012). Carney and Indrisano (2013) suggest that it is teachers’ abilities to combine content knowledge, pedagogy, and ways of thinking reading and communicating in a discipline, will allow them to incorporate the principles of DL in their content-area classrooms.

Thibideau’s (2008) study of a small collaborative group of high school teachers from differing disciplines that came together to practice various reading strategies reflected the positive outcomes of teachers working together towards a common goal. These content-area teachers changed from being skeptical about the amount of time needed to teach the reading strategies to recognizing the use of strategies improved student reading performance on content-based assessments 16% in one school year.

Although changing beliefs about including reading instruction in the content area may not guarantee that teachers are changing their pedagogical practices in the classroom (Hall, 2005), Hughes, Kerr, & Ooms (2005) model of content-focused teacher inquiry groups exemplified how a successful paring of teachers in a K-12 setting can improve individual teacher learning and practice when teachers are part of a learning community.

**Conceptual Framework: Disciplinary Literacy Principles and Practices**

The conceptual framework that will provide a guide to determining teacher knowledge and use of DL principles and practices in this case study is as follows:
DL Principles

Teachers play a key role in establishing a DL learning environment. McConachie and Petrosky (2010, p. 30-31) developed a set of principles that reflected this practice and described it as follows:

- Principle 1: Knowledge and thinking must go hand in hand.
- Principle 2: Learning is apprenticeship
- Principle 3: Teachers as mentors of apprentices
- Principle 4: Classroom culture socializes intelligence
- Principle 5: Instruction and assessment drive each other

The purpose of these principles is to build a community of learners who are self-motivated and able to engage in the practices of the social studies discipline. Teachers are guides in the classroom, learning alongside their students and offering support in students’ exploration of topics and issues. Students are encouraged to work with others and share their discoveries. Teachers model the habits of a historian and provide authentic learning opportunities. Assessments are given and used as a guide for instruction. Students are also expected to take a role in establishing their own learning goals and assessing their progress. These principles are the basis for the need to prepare students to be independent thinkers and learners with essential skills that will prepare them for their future in the 21st century.

DL Practices

To gather all the facets of teaching with the principles and practices of DL in the content area classroom, Moje (2015) developed a detailed framework or heuristic for teaching DL (see...
Moje separated the framework into the “4Es” of disciplinary teaching practices: engage, elicit/engineer, examine, and evaluate (p. 260). The first construct of engagement is further broken down into the cyclical process of disciplinary practices: problem framing, working with data, use of a variety of media sources, analyzing findings, examining and evaluating claims, and communicating claims.

This model is designed to help teachers focus on the “purposeful and meaningful literacy practices engaged by people within and across disciplinary domains” (Moje, 2015, p. 255). The
target for teachers should be the engagement of students in everyday practices of disciplinarians in content area fields. Whether it be mathematicians, scientists, or historians Moje has teased out the commonalities among these fields. Asking questions, working with data, reading and writing about the discipline along with recording, analyzing, synthesizing, and communicating findings are all practices exercised by experts in every field of study. Following the cyclical path expressed in this heuristic ensures teachers that they are fully engaged in DL practices.

The 4Es provide a guide to disciplinary teaching practices. These are the actions a teacher should take to fully immerse herself in DL-based instructional practices. The first E of “engage” serves as a reminder to teachers to engage in the practices of an expert in the discipline. The second E of “elicit/engineer” encourages teacher to recognize the skills students already have and bring to the classroom and to use this knowledge to engineer learning opportunities that further these skills and build new ones. The third E of “examine” focuses on the use the vocabulary, symbols, and the way people engaged in a discipline use language specific to their field. The final E of “evaluate” emphasizes the need for students to evaluate the when, why, and how disciplinary discourses. The underlying basis of this practice supports the socio-cultural perspective of students and how they navigate through various “worlds” of home and school using different vocabulary, social habits and practices. It is suggested that skills of evaluation will help them navigate through various disciplinary “worlds” (Moje, 2015).
Teaching and Technology

Role of Technology in the Classroom

Technology itself has changed the fundamental role of the teacher in the classroom (Leu, et al., 2004). Teachers are no longer the dispensers of knowledge or the most literate person in the room, rather students may come into the classroom more literate in new technologies than the teacher. Teachers must recognize that the new literacies are not solely school-based activities. Effective literacy instruction in the classroom need to be built “on elements of both formal and informal literacies” (Alvermann, 2002, p. 190). Paying close attention to technology use in and out of school is important. This has changed the learning environment in the traditional social studies classroom. It is important that teachers recognize the “links between traditional literacy and the new literacies students use in their lives outside of school…to help youth use their existing knowledge to be prepared as effective communicators and critical thinkers in the 21st century” (Young & Daunic, 2012, p. 71). Teachers will need to create new learning environments that embrace this change. The content area classrooms will need to need to incorporate “new media and new literacy practices” in the classroom (Moje, 2008, p. 97). This practice could include using “non-traditional texts, text-based activities, and textual forms…that today’s students find functional and challenging” (Guzzetti, 2009, p. 202).

But the mere infusion of technology into the classroom does not guarantee effective use of the technology. Content knowledge, pedagogy, and technology need to be combined correctly for meaningful content-area learning to take place. “Technology as applied to education is not a separate set of unrelated skills, but rather an integrated part of what teaching is all about” (Flagg-Williams & Rey, 2016, p. 1). To create a successful learning experience for students, “teachers
need additional knowledge of the content they are required to teach, the pedagogical methods that facilitate student learning, and the specific ways in which technology can support those methods” (Ertmer & Ottenbreit-Leftwich, 2010, p. 260).

Zhao and Frank (2003) showed evidence of teacher technology use with students increased with “peer pressure” and/or help from colleagues. The most successful technology-integrated social studies projects are developed by teachers in conjunction with a clear goal in mind, a specific activity, and defined learning outcomes (Debele & Plevyak, 2012). Veteran teachers may have an advantage over their “digital native” colleagues, this being reflected in their established content and pedagogical knowledge. The infusion of technology in veteran teachers’ lessons showed depth and breadth that inexperienced teachers had not yet developed (Hughes, 2005). Proper integration of technology and well-planned professional development can lead to successful use of technology by teachers, but further study needs to be done about how to bridge the gap between use and complete integration into the classroom for instruction (Cowie, Jones, & Harlow, 2011).

The process of changing instructional environments is not a simple task. Even when teachers’ themselves believe strongly in the use of technology and new literacy practices in the content-area classroom, actual integration of these into classroom practice may not occur (Hse, Wang, & Runco, 2013). Teachers as instructors must believe in the technology they are using and the effectiveness of the technology, which in turn supports their beliefs that student learning and engagement improves with the use of technology (Buzzard, Crittenden, Crittenden, & McCarty, 2011).

Regardless of the obstacles that exist regarding use of technology in the classroom, for example the lack of teacher buy-in, or knowledge of student technology practices, the students
themselves understand the importance of technology and its relevance to their futures. In Spires, Lee, Turner, and Johnson’s (2008) survey of 4,000 middle school students, the participants clearly stated how learning was much more engaging with technology, how they preferred using the Internet over books for research, and how they wanted more technology at school because it relates directly to future careers. Students understood that schools needed to look more like the outside world. Teachers needed to adjust their teaching and use of technology to reflect the outside world as well.

Openness to change, quality of training, and the amount of time spent out of the classroom with technology are all factors in predicting how likely teachers are to use technology in their classrooms (Vannatta & Fordham, 2004). But one fact is clear, it is not only teachers, but district leaders and students also need to be involved in the adoption of technology in a classroom to enhance learning, because “simply renaming traditional processes, without altering basic beliefs about the processes themselves and the supporting methods, will not significantly alter the nature or quality of a learning environment” (Hannafin & Land, 1997, p. 197). Schools which involve the entire teaching staff, teachers’ needs and concerns, teachers’ hardware and software concerns, and help teachers integrate teaching and learning processes into the classroom appear to have the most positive technology integration environments (Sangra & Gonzalez-Sanmamed, 2010).

Once technology is in the classroom, there are other considerations. How will teachers use the technology in their instruction? Pedagogy and technology are intertwined, but to what extent still needs to be determined (Voogt, Fisser, Roblin, Tondeaur & van Braak, 2013). Pedagogical stance is difficult to change. Evidence of this can be found in a study that examined two middle social studies teachers use of student-created digital documentaries in a social studies
class. Both teachers taught the same content, yet one teacher took on the role of content “manager”, while the other teacher became a “facilitator” of content. This study revealed that despite having the same technology and curricular objectives, teachers still maintained the pedagogical style that was most comfortable (McGlinn-Manfra & Hammond, 2006).

Technology, no matter the pedagogical style of the teacher, in combination with traditional curriculum, had been shown to facilitate a constructivist learning environment and support the advancement and development of multiliteracies (Borsheim, Merritt, & Reed, 2008). Instructional practices and curriculum that support student-centered and multi-literate approaches help students acquire strong inquiry skills and high levels of civic competence (Beck & Eno, 2012). These are at the core of the CCSS, C3 framework, and DL principles and practices. Technological devices, such as the iPad, have been shown to support interactivity, multimodality, and collaboration, all necessary to create a 21st century social studies environment (Karchmer-Klein, Mousa, Shinas, & Park, 2017).

1:1 iPad Implementation and Instruction in the Classroom

Research has slowly emerged in the last several years that has addressed the use of the iPad and 1:1 initiatives in the classroom. One-to-one initiatives have led to measurable changes in teacher practices, student research skills, achievement, and engagement (Bebel, Clarkson, & Burraston, 2014, Chou, Block, & Jesness, 2014, Bebell & Kay, 2010). Studies have concluded that despite the implementation of various approaches to 1:1 technology implementation programs, it is still the teacher who bears the onus of responsibility for implementation in the classroom (Bebell & O’Dwyer, 2010). And although some teachers may find iPads intimidating,
there is an overall positive attitude about the enhancement to instruction it provided (Young, 2016).

The iPad, particularly in a 1:1 environment, enabled teachers to create a more student-centered, inquiry-based classroom, although this was contingent on the focus of the curriculum and creation of assessments which focus on more than just memorizing facts and content (Beck & Eno, 2012). Overall, the iPad offers teachers a variety of ways to enhance and shape instruction in the classroom (Gallagher et al., 2015). Sessions, Kang, and Womack (2016) found that use of the iPad for writing in a fifth-grade classroom, motivated students to write and made the writing process more interactive and engaging. Another study, also of fifth-grade students, found the use of the iPad improved reading engagement and comprehension (Moon, Wold, & Francom, 2017).

When Henderson-Rosser and Sauers (2017) looked at science teachers using 1:1 iPad technology in an inquiry-based learning environment, they found that the technology enhanced multiple areas of inquiry-based instruction. But how the teachers used the technology impacted the learning as much as the iPad as a tool itself. “Simply providing an iPad definitely was not enough to change instruction- teachers need adequate training on inquiry-based instruction so that they can maximize the tool and truly change the quality of inquiry-based instruction” (p. 120). This supported previous research that emphasized teacher professional development and training as important as providing the technology and tech support (Chou, Block, & Jesness, 2014).

Meyer (2014) also showed how the iPad was useful for students when creating new ways to present information, but the main direction and instruction from the teacher was still necessary to make the learning meaningful for students. Teachers need to consider how iPad technology
will support their instructional decisions, and further study of this process may prove useful to teacher education programs, technology support personnel, and school districts (Colwell & Hutchinson, 2015). Research is slowly trickling in, but the need remains for additional research in the areas of technology, pedagogy, and content knowledge, not only in the middle school social studies classroom, but across all levels and disciplines (Gomez, 2015).

Conceptual Frameworks: Teaching in the Digital Age and TPACK

Teaching and Learning in the Digital Age

This study also used the two conceptual frameworks to explore how teachers used technological, pedagogical, and content knowledge to address DL learning standards in their social studies instruction. The framework by Starkey addressed teachers’ methodological choices and the TPACK model created by Mishra and Kohler (2012) provided a lens through which to examined teachers’ abilities to combine social studies content, technology, and pedagogy in ways to successfully incorporate DL principles and practices in their classrooms.

According to Shulman (1987), to understand how teaching takes place, one must understand the knowledge base that teachers possess. His study of the knowledge and skills veteran teachers possess, focused on the teacher’s task to “transform understanding, performance skills, or desired attitudes or values into pedagogical representations and actions” (p. 7).

Van Driel, Verloop, and De Vos (1998) define this term, which encompasses knowledge and skill, as craft knowledge which is

an integrated knowledge which represents teachers’ accumulated wisdom with respect to their teaching practice…this knowledge guides the teachers’ actions in practice [and] encompasses teachers’ knowledge and beliefs with respect to various aspects such as pedagogy, students, subject matter, and the curriculum. (p.674)
A teacher should understand what is to be taught and how to teach it. The underlying concepts of this knowledge-base that effective teachers need include

- Content knowledge
- General pedagogical knowledge
- Curriculum knowledge
- Pedagogical content knowledge
- Knowledge of learners and their characteristics
- Knowledge of educational contexts
- Knowledge of educational ends

Most important among these, according to Shulman, is pedagogical content knowledge. It is here that a teacher distinguishes his/herself from a specialist in the given field. The sources of such expertise or teaching knowledge come from understanding in the content area, the materials needed to teach the content, knowledge of learning and teaching, as well as the “wisdom of practice itself” (p. 8). From this base of teaching and the sources of knowledge, Shulman constructed a model he aptly named “A Model of Pedagogical Reasoning and Action”. This model (see Table 2) reflects the thinking, planning, and execution a teacher would employ to develop and deliver an effective lesson.

This model represents a teacher’s ability to take knowledge and transform it into a meaning learning experience for students which involves many factors beyond basic content being taught.
Table 2
Shulman’s Model of Pedagogical Reasoning and Action

<table>
<thead>
<tr>
<th>Comprehension Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
</tr>
<tr>
<td>Representation</td>
</tr>
<tr>
<td>Selection</td>
</tr>
<tr>
<td>Adaptation and tailoring to student characteristics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instruction Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking/testing for student understanding</td>
</tr>
<tr>
<td>Self-evaluation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reflection New Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose, subject matter, students, teaching and self</td>
</tr>
</tbody>
</table>

Starkey (2010) updated Shulman’s model of pedagogical reasoning and action with a multiple case study of 120 beginning teachers. Starkey examined the teacher’s experiences at three points during the school year as they applied Shulman’s model. The outcome of this study highlighted the gap between the application of technology and the understanding these teachers had of learning and knowledge applicable to the digital age. Starkey attributed this to the training that the teacher’s had in theory and practice that were established well before the introduction of technology in educational practices. This limited their ability to use pedagogical content knowledge in innovative ways. According to Starkey, teachers were no longer the transmitters of all knowledge, but needed to take on the role of connector between the student and the knowledge. They should have encouraged students to go beyond what the teacher could “teach” and extend their own learning.
This new model of pedagogical reasoning and action in the digital age (Table 3) reflects an updated connectivist approach to teaching and learning in which the teacher assists students in creating their own knowledge and understanding rather than memorizing a prescribed set of facts or narrowly defined content determined by the teacher.

This model reflected the ideology that a teacher knows something and can transform this knowledge into pedagogical action. Through a series of activities or opportunities for learning the process ends with new comprehension by the teacher of subject, students, and pedagogy.

Table 3

Starkey’s Model of Teacher Pedagogical Reasoning and Action of the Digital Age

<table>
<thead>
<tr>
<th>Comprehension of subject knowledge (content knowledge) includes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantive knowledge (concepts and principles) and syntactic knowledge (subject methodologies) enable connections.</td>
</tr>
</tbody>
</table>

**Enabling Connections:**

Preparation for teaching (pedagogical content knowledge) include:

<table>
<thead>
<tr>
<th>Selecting appropriate resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transforming existing knowledge into teachable content</td>
</tr>
<tr>
<td>Enabling opportunities for student to create, critiques, and share knowledge</td>
</tr>
<tr>
<td>Enabling connections between groups and individuals to create, critique, and share knowledge of subject</td>
</tr>
<tr>
<td>Adaptation and tailoring (personalizing) learning for the student being taught</td>
</tr>
</tbody>
</table>

**Teaching and learning:** (knowledge of context) include:

| Formative and summative evaluations of student learning with feedback to students (from a variety of sources), and modification of the teaching process where appropriate |

**Reflection:**

| Reviewing and critically analyzing teaching decisions based on evidence |

**New Comprehensions** are made:

| About the subject, students, and teaching |
The second concept supporting this study was Starkey’s (2010) model of teacher pedagogical reasoning and action. This model deconstructs the knowledge teachers have and how they use this knowledge to transform learning, instruct students, and build new student knowledge. Table 4 provides a side-by-side comparison of the original model by Shulman and the updated model by Starkey.

Table 4

Model of Pedagogical Reasoning and Action vs. Model of Teacher Pedagogical Reasoning and Action for the Digital Age

<table>
<thead>
<tr>
<th>Model of Pedagogical Reasoning and Action (Shulman, 1986)</th>
<th>Model of Teacher Pedagogical Reasoning and Action for the Digital Age (Starkey, 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehension</strong></td>
<td><strong>Comprehension</strong></td>
</tr>
<tr>
<td>• Subject matter</td>
<td>• Concepts and principles of discipline</td>
</tr>
<tr>
<td>• Ideas within/outside discipline</td>
<td>• Subject methodologies</td>
</tr>
<tr>
<td><strong>Transformation</strong></td>
<td><strong>Engaging Connections</strong></td>
</tr>
<tr>
<td>• Lesson preparation</td>
<td>• Selecting resources to enable student connections</td>
</tr>
<tr>
<td>• Representation of subject knowledge</td>
<td>• Enabling opportunities for students</td>
</tr>
<tr>
<td>• Selection of instructional modes</td>
<td>• Enabling connections between groups and individuals</td>
</tr>
<tr>
<td>• Adaptation for students</td>
<td>• Adaptation of learning</td>
</tr>
<tr>
<td><strong>Instruction</strong></td>
<td><strong>Teaching and Learning</strong></td>
</tr>
<tr>
<td>• Management</td>
<td>• Formative and summative evaluations of student learning</td>
</tr>
<tr>
<td>• Active teaching</td>
<td></td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
<td><strong>Reflection</strong></td>
</tr>
<tr>
<td>• Checking for understanding</td>
<td>• Reviewing/analyzing teaching decisions</td>
</tr>
<tr>
<td>• Testing students</td>
<td></td>
</tr>
<tr>
<td>• Evaluating one’s own teaching</td>
<td></td>
</tr>
<tr>
<td><strong>Reflection</strong></td>
<td></td>
</tr>
<tr>
<td>• Reviewing lesson</td>
<td></td>
</tr>
<tr>
<td>• Analysis of teaching and class performance</td>
<td></td>
</tr>
<tr>
<td><strong>New Comprehensions</strong></td>
<td><strong>New Comprehensions</strong></td>
</tr>
<tr>
<td>• Subject matter</td>
<td>• Subject</td>
</tr>
<tr>
<td>• Students</td>
<td>• Students</td>
</tr>
<tr>
<td>• Teaching/self</td>
<td>• Teaching</td>
</tr>
<tr>
<td>• Consolidation of new understandings</td>
<td></td>
</tr>
</tbody>
</table>
Each model is composed of the categories of knowledge a teacher holds including content knowledge, pedagogical knowledge, pedagogical content knowledge, and knowledge of learners. Shulman’s model illustrates the process of teaching and learning.

The original model is grounded in constructivist learning theory, while the proposed model includes connectivism. Both models assume that the students will construct an understanding of the content through a variety of pedagogical approaches...the teacher will consider the learner and the context and reflect on the teaching process. Connectivist learning theory has an underpinning notion that learning includes students creating knowledge through connections in an open and flexible curriculum, rather than the teacher transmitting the *truths* and methodologies of a subject. (as cited in Starkey, 2010, p. 243)

**Technological, Pedagogical, and Content Knowledge (TPACK)**

The TPACK model also draws on Shulman’s (1986) theory of teacher knowledge which described the intertwining of teacher pedagogy and teacher content knowledge constructs. Shulman proposed that teacher education should include not only content knowledge, but pedagogy useful in developing content knowledge in the classroom hence, PCK. The TPACK model (see Figure 4) was a response to the influence technology had gained in the process.

The TPACK framework was designed to transform the way teacher education and professional development should be designed. The TPACK model (Mishra & Kohler, 2012) supported Shulman’s theory of teaching (PCK) and is based on the belief that content knowledge, pedagogical knowledge, and technology all be fully involved when thinking about quality teacher training and professional development.

Developing good content requires a thoughtful interweaving of all three key sources of knowledge: technology, pedagogy, and content...Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate, context-specific strategies and representations. (Mishra & Koehler, 2006, p. 1029)
Figure 5. TPACK framework and its knowledge components. (Reproduced by permission of tpack.org)

With the introduction of new technologies of the present day, Mishra and Koehler (2006) further developed the intersection of teaching knowledge and teacher’s content knowledge with the third construct: technology. This framework “acknowledges the significant interplay between a teacher’s pedagogical stance, their use of technology, and their knowledge of the content of the discipline in which they are teaching” (Anderson, Barham, & Northcote, 2013, p. 551). Technology plays such a large role in the teaching and learning environment that technology knowledge should not be separated from content or pedagogical knowledge. Technology and the ability to use it has become such an important part of the current learning environment it demands recognition as a dimension of its own. The TPACK model “emphasizes the connections, interactions, affordances, and constraints between and among content, pedagogy, and technology” (p. 1025). TPACK addressed the intersection of technology, pedagogical and content knowledge by recognizing and providing a “dynamic framework
describing the knowledge that teachers must rely on to design and implement curriculum and instruction while guiding their students thinking and learning with digital technologies” (Niess, 2011, p. 301).

The TPACK model addressed seven independent and/or overlapping domains.

Content Knowledge (CK) is the “knowledge about the subject matter that is to be learned or taught” (Harris & Koehler, 2009, p. 397). Knowledge is subject-specific and can vary from subject to subject and grade level to grade level.

Pedagogical Knowledge (PK) is the “deep knowledge about the processes and practices of teaching and learning” (Harris and Koehler, 2009, p. 397). This is the instructional practices that a teacher chooses to address the needs of the learners, how to deliver instruction, and how to assess student understanding (Harris and Koehler, 2009). It is an understanding by the teacher of “cognitive, social, and developmental theories of learning and how they apply to students” (Mishra & Koehler, 2006, p. 1027).

Technological Knowledge (TK) is knowledge needed by a teacher to use and operate the technology necessary to meet the goals of a lesson. It is the operational skills to understand and use software, hardware, and any other technological tools or devices. This is an ever-changing body of knowledge given the ever-changing technologies being developed and used by students and teachers.

Pedagogical Content Knowledge (PCK) is similar to Shulman’s (1986) idea that teaching a subject requires knowledge different from that of expert in the disciplinary field or general pedagogical practices. Subject-specific teaching requires the ability to understand how students learn in a subject, how prior knowledge may bring with it misconceptions about the subject specific knowledge, and an understanding of how to best address these challenges.
Technological Content Knowledge (TCK) is how the teacher understands a technology and how the application of this technology can change the content. Technology can be used to enhance understanding and this understanding can enhance the content.

Technological Pedagogical Knowledge (TPK) is the knowledge a teacher has about the tools used in teaching and learning. This is the ability of a teacher to see the capabilities of a technology for completing more organizational tasks like tracking student attendance, grades, and communication tools such as blogs, discussion boards, and social media sites.

Technological Pedagogical Content Knowledge (TPACK) is the “basis of good teaching with technology and requires an understanding of technology, how to use the technology to teach content, which technologies are best for which students, and how technology can be used to build on existing knowledge or create new knowledge. Quality teachers would understand how to develop effective lessons using all three components in combination with each other.

The TPACK model requires teachers to have knowledge across multiple constructs. Teachers must understand

- how to use technology
- how to use technology in pedagogically sound ways
- how technology can be used to simplify student understanding and learning
- how technology builds on existing knowledge
- how to develop new or improved ways of understanding.

New technologies often disrupt the “status quo, requiring teachers to reconfigure not just their understanding of technology but all three components” (Mishra & Koehler, 2006, p. 1030). These three elements form a type of balance which requires attention to all three at any given
time. These elements are not mutually exclusive. If a teacher chooses to change one element, then the others by default will also change.

**TPACK in Research**

The use of the TPACK model in research reflected the complicated relationship between the three constructs of technology, pedagogy, and content knowledge (Wilson & Wright, 2010). In two literature reviews of research conducted using the TPACK model, Wu (2013) and Voogt, et al. (2013) both found that most studies did not address domain-specific TPACK, but focused on preservice and in-service teachers and examined teacher’s general use of TPACK.

There have been attempts to measure teachers use of TPACK with the use of survey instruments. Schmidt, Baran, & Thompson (2009) used factor-analysis to assess pre-service teachers’ development of TPACK, while Archambault & Crippen (2009) also attempted to measure TPACK components of online teachers in grades K-12. Akman and Guven (2015) were successful in developing a reliable survey tool to measure self-efficacy perceptions of social science teacher candidates, while Finger and Finger (2013) emphasized the importance of teachers’ stories when attempting to understanding what TPACK looks like for educators.

Although these surveys and studies have been refined over time, the argument exists that these instruments face difficulty due to the lack of agreed upon definitions the domains of TPACK (Jaikaran-Doe & Doe, 2015).

Recent years have produced additional work in using the TPACK model as a tool to understand how teachers integrated technology into their practices, unfortunately for this study, the research has focused primarily on pre-service or online educators. This study attempted to use the TPACK model in a generalized way to determine how teachers view their use of each
construct: technological, pedagogical, and content knowledge to support DL principles and practices in the social studies classroom.
CHAPTER 3

METHODOLOGY

The purpose of this qualitative case study was to explore middle school social studies teachers’ understanding and practice of disciplinary literacy with use of iPad technology in a 1:1 environment. This chapter outlines the methodology used in this research and rationale for the research design. This chapter will also address the methods and procedures for data collection and analysis.

Research Questions

In this study, the following research questions were addressed:

1. What were middle school social studies teachers’ perceptions and practices of disciplinary literacy?

2. How did middle school social studies teachers integrate technological, pedagogical, and content area knowledge together in their instruction to support disciplinary literacy practices?

3. How did middle school social studies teachers integrate iPad technology into their instruction?
Research Design

This study took a constructivist approach to the research design (Mertens, 2010) because this methodology provided the most effective approach for gathering information and exploring the topics related to the research questions and design. A qualitative approach “makes possible new articulations of experience” (Schostak, 2005, p. 15). By engaging in in-depth interviews, multiple classroom observations, and artifact analysis the researcher was able to build a detailed view of how middle school social studies teachers combined technological and pedagogical knowledge along with content area curriculum in their classrooms. A case study methodology provided deep individualized insight and understanding into “how the phenomenon matters from the perspective of the teachers” (Haas-Dyson & Genishi, 2005). This approach provided the means in which to gather data and come into close contact with individuals most intimate with the questions posed by this study.

The study was conducted in a middle school setting because “the primary way a researcher can investigate an educational organization…is through the experience of the individual people…who make up the organization or carry out the process” (Seidman, 1998, p. 4). This middle school where teachers had adopted iPad technology and who taught social studies to a range of students with varying ability levels provided a unique opportunity for research and analysis. An in-depth case study of six middle school teachers’ experiences provided rich and descriptive data about their use of technology in a social studies classroom to promote disciplinary literacy practices among students.

After gathering data from preliminary text-based protocol individual interviews, classroom observations, post-observation interviews, the collection of artifacts and teacher self-reports
augmented the data collection. The use of personal interviews allowed the researcher to “put behavior in context and provide access to understanding the [teachers’] beliefs, actions, and reflections” (Siedman, 1998, p. 4) Furthermore, inductive analysis of data gathered from interviews, observations, and teacher self-reports combined with artifacts and documents supporting technology and disciplinary literacy practices provided a strong methodological approach allowing for triangulation of data and the best comprehension of the research questions posed in this study.

School District

The school district and the teachers chosen for this study were in the northwest suburbs of Chicago. The unit school district, consisted of five elementary schools, two middle schools, and one high school enrolled approximately 5,800 students. The ethnic make-up of the student population was 81% White, 7% Hispanic/Latino, 7% Asian, 2% Multicultural/Multiracial, and 1% Black/African-American or Pacific Islander. Twelve percent of the families were reported as low-income, English language learners comprise 5% of the population, and 14% of the students were categorized as having a disability (Illinois Interactive Report Card, 2014). This district employed 389 teachers with a per-pupil expenditure amount of $7,379 for instructional purposes with a graduation rate after four years of high school of 97%. The teachers’ average years of teaching experience in the district is 13.8, with approximately 78% having earned a master’s degree or higher (School website).
Participants

The teachers were (one sixth, seventh, and eighth) and five seventh and eighth grade middle school social studies teachers from the two middle schools. There were nine invitations sent out to teachers at two middle schools (See Appendix D). A convenience sample of six teachers agreed to participate in the initial interviews (Patton, 2002). All teachers taught at least two sections of social studies. Eighth and seventh grade teachers were chosen because they had at least two years of professional development and iPads use in the classroom. These teachers were in the second and third year of the iPad 1:1 initiative. The age range of these teachers was from 30-60 years of age, male and female. The participating teachers all had at least five years of teaching experience.

All teachers at the middle schools were part of an ongoing phase-in process of technology aimed at a three-year progressive plan providing 1:1 iPad technology for all middle school students in the district. The district expectation was that within the first year of implementation, teachers would incorporate iPad technology in their classrooms within each as teacher’s “comfort zone”. The second-year goal was to become more proficient with use of this technology in the classroom and utilize the online learning management system (Canvas) to assign daily homework. By the third year of implementation, teachers were required to post lessons, use relevant apps, and began to rely on the iPad for the majority of teaching and learning tasks.

All teachers attended at least three professional development training sessions on the use of iPads which was organized and provided by the school district. This training totaled
approximately six hours of hand-on training. Any ongoing training took place during the school year at various times focusing on different aspects of the iPad.

Canvas, the learning management system, was the main tool that teachers used to communicate to parents and students about homework assignments, post online discussions and assessments, and store links to files and relevant websites. This learning management system, purchased by the school district, was a mandatory electronic course organization system all teachers were required to learn and use. The researcher, with permission from teachers, had access to the Canvas accounts of the participating teachers. The access provided a detailed view of how teachers used technology to design, assign, and assess student work with a disciplinary literacy focus, what apps and links were being utilized in the classroom, and how teachers communicated with students outside of the classroom via technology.

The participating teachers did not have formalized training or professional development about disciplinary literacy. It is for this reason a text-based interview was chosen as the basis for the initial interview protocol. The participating teachers read a brief article which introduced the concepts of disciplinary literacy practices in a social studies classroom and gave a detailed example of a lesson conducted using DL practices. The teachers were asked to discuss the contents with the researcher during initial interviews. It was at this time the researcher evaluated the level of beliefs and practices of the teachers regarding disciplinary literacy.

Teacher as Researcher

As a social studies teacher with a literature and language arts background, it has also been very important for me to understand if and how my students are capable of reading and responding to the texts that I provide. I continued to struggle with the balance of content and
skills while creating a place where students practice “social studies”- not just read a textbook, fill out worksheets and take multiple choice tests. I want my students to experience real-life social sciences and talk to real-life practitioners. I want them to question and research and immerse themselves into history. It is here that I see the real promise of technology in my classroom. The Internet opens up endless doors of research and communication with the outside world. It allows all students equal access to primary source resources. It provides opportunities for collaboration and discussion and celebration of what they have learned. Even though this school district had not revamped its middle school social studies curriculum in over 10 years, the teachers themselves kept current to new trends and practices, such as inquiry-based learning and recognizing the value of developing lessons that incorporate the CCSS and C3 Standards. The crossroads of content, pedagogy, and technology is where I chose to focus my research and discover how teachers are using iPad technology, along with their pedagogical and content knowledge to implement DL practices in the middle school social studies classroom.

Data Collection

Data collection instruments included one-to-one personal interviews, classroom observations, teacher self-reflection reports, and documentation and analysis of Canvas, the learning management system and other artifacts. Gathering information from teachers via this process provided the means to “educate (that is, draw out), elucidate, and evaluate what is at stake” (Schostak, 2005, p. 50). These tools, aligned with the research questions in the table below, provided varying sources of in-depth exploration of the research topic and imparted validity and reliability of results. The following table (Table 5) summarizes the relationship of data collection instruments used for each of the research questions in this study:
Table 5
Alignment of Research Questions with Data Collection Instruments/Strategies

<table>
<thead>
<tr>
<th>Research Questions:</th>
<th>Text-based Verbal Protocol Interviews</th>
<th>Classroom Observations</th>
<th>One-on-One Post-Observational Interviews</th>
<th>Teacher Self-Reports</th>
<th>Artifacts/Documents: Canvas LMS Websites Apps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are middle school social studies teachers’ perceptions and practices of disciplinary literacy?</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2. How do middle school social studies teachers integrate technological, pedagogical, and content area knowledge together in their instruction to support disciplinary literacy practices?</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3. How do middle school social teachers integrate iPad technology into their instruction?</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

**Interviews**

**Initial Interviews**

For the initial interviews, all participating teachers (n=6) took part in one-on-one interviews which provided insight into the teachers understanding of disciplinary literacy philosophy and practice as well as their understanding and ease of use of the iPad in the social studies classroom. This portion of the case study was titled Phase 1. Because it was unclear to the researcher whether the teachers had extensive knowledge or familiarity with the concept of disciplinary literacy, this study started with preliminary interviews using a text-based verbal protocol method (Lewis & Chandler-Olcott, 2012). The teachers were given the article titled “Disciplinary Literacy in the History Classroom” (Ravi, 2010). This article was chosen for its
teacher friendly language, simple explanation of DL principles, and the detailed example of a history lesson which incorporated DL practices. This allowed the researcher to introduce the concepts of DL if the participants were not familiar with it. The initial group of 6 teachers were asked to read and discuss a focal article. The interviews took place after school and lasted approximately 60 minutes.

To prepare for the text-based protocol, a paper copy of the article was sent to each teacher approximately two weeks before each initial interview and each participant was given the option of reading it ahead of time or collaboratively reading it aloud with the interviewer during the interview. All six teachers chose to read the article ahead of the interview. At the start of the initial interviews, the researcher informed the participants that the interview would consist of questions related to their professional experience, questions related to their thinking about the article, and their thoughts about the use of technology in their classrooms (See Appendix C).

In addition to questions related to the DL article, the interviews also focused on the individual use of the iPad to deliver instruction. This portion was included to help inform the researcher on which teachers would make strong candidates for this study. The researcher used the initial interview data to determine which candidates had a strong base of technological and a basic understanding or a willingness to utilize the principles of disciplinary literacy.

After initial interviews, all six candidates were asked to participate in Phase 2 of this study which included classroom observations, post-observation interviews, teacher self-reports, and allowing access to Canvas accounts. Only three of the initial participants agreed to continue

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with the study, therefore there was no need to apply further analysis of the most qualified candidates for this study.

**Post-Observation Interviews**

Teachers chosen for this study participated in four post-observation interviews over a sixteen-week period. The interviews were scheduled after each classroom observation. These interviews provided an in-depth look into the thought processes and decision-making that influenced the actions of the teachers. The questions focused on the lesson and how the teacher saw the principles and practices of DL connected to the lesson (See Appendix H. The one-on-one interview protocol allowed the researcher to gain an understanding of how these teachers “interpret their worlds, and how we can, in turn, interpret their interpretations” (Shank, 2002, p. 81).

The individual post-observational teacher interviews, following the classroom observations, were conducted after school the day following the observations. The location of the interviews was the choice of the interviewee. Each interview was approximately 40-60 minutes in length. Before Phase 2 took effect, the three interviewees were reminded of the basic purpose of this study and asked to sign a consent form (See Appendix E). A pseudonym was assigned to each participant in order to provide anonymity.

The spacing of the observations and interviews allowed teachers time to take action, reflect on their actions, and then evaluate the process and results of these actions. The typed transcripts of the post-observation interviews were shared with the Phase 2 teachers so that why could verify and collaborate on the emerging themes of the analysis. This allowed the researcher to learn about the viewpoints the teachers held and reinforced the validity of the findings
Informal interviews or follow-up questions via email took place at various times to confirm researcher findings or as a follow up to classroom observations.

**Observations**

In this study, classroom observations of each participating teacher took place a minimum of four times during the four-month period. This time period spanned two grading periods (9 weeks each) in order to observe first-hand use of iPad technology in the social studies classrooms. The observations were one class period in length or approximately 40 minutes. The researcher took the role of complete observer and did not participate in the classroom activities although did circulate to ask students question for clarification purposes. Notes were taken on the lesson objective, the technology used by the teacher and students, and which aspect of DL was observed (See Appendix F). The researcher noted every observable instance of DL principles or practices taking place during the lesson (See Appendix G).

These observations were followed by a post-observational interview as previously described. The researcher recorded the lesson objective, the technology that was utilized, and each observed instance of DL principles or practices being implemented during the lessons. This allowed the researcher to record information on the behaviors and activities in the actual learning environment (Creswell, 2009). Field notes were analyzed and coded, with confirmation of emerging themes and relevant data taking place with follow-up interviews with teachers as needed.
Artifacts

Artifacts can be public or private documents, photographs, video tapes, computer software, or emails (Creswell, 2009). The collection and analysis of artifacts allowed the researcher to identify patterns and evidence to verify understanding (Mertens, 2010). In this study, not only will traditional paper documents provide data, but the inclusion of applications (apps) available on the iPad, as well as other electronic sources of data were also considered artifacts. Artifacts were requested and collected from the teachers in the one-on-one interviews. Teachers were asked to share lesson plans, websites, technology, and a list of apps they used with students. These data were collected via a simple form that teachers filled out on a weekly basis (See Appendix I). The records included software programs, websites, apps, or other relevant technology that teachers use in their classroom practice. The self-reported data provided a confirmation of the information provided by the teachers’ websites supported by Canvas.

Canvas was the digital learning management system that is funded by the school district and that all teachers are required to use. Access to the Canvas website provided information about day-to-day and long-term assignments, assessments, website links, online discussions, and other documentation specific to each teacher’s classroom activities. In order to access the teachers’ websites, the teachers will provide access to the researcher which can be done by adding the researcher to the class list.
Data Analysis

Transcription Procedures

Text-based and individual interviews were recorded via digital recording device. These recordings were transferred to a laptop computer and transcribed using Microsoft Word. Electronic data were collected with a screenshot of websites or webpages and then printed out to allow for hand coding of data. iPad apps were listed for coding purposes. Any screenshots were converted into a PDF file to allow for coding. Any paper documents, such as lesson plans, were printed in hardcopy version for hand coding. All documents and records were stored as digital files and secured on the website Dropbox. This site is a password protected website which allowed only the researcher herself to have access to the files.

Initial Coding

Initial coding was the first step to data analysis. “Initial coding is intended as a starting point to provide the researcher with analytic leads for further exploration” (Saldana, 2009, p. 81). Transcribed data were analyzed in a line-by-line method with the researcher highlighting and noting or “coding” words, phrases, or relevant topics which come to light. The coding process allowed the researcher to study the data for patterns. These patterns were developed by “reorganizing and grouping data into comparable categories or themes” (Saldana, 2011, p. 28). Open coding allowed for comparison of similarities and differences in the data.

The researcher began the coding with a line-by-line analysis of interviews, observation data, and Canvas artifacts. After the initial coding, related bits of data were grouped together and given a category title (Strauss & Corbin, 1998). These data were highlighted and color-
coded based on their relationship to the themes of DL, TPACK, or iPad. The purpose of second cycle coding was to narrow down the coding categories gathered in the initial coding process. This method provided a re-organization and synthesis of the original coding categories and provided a means of identification of relationships between categories. Important themes or recurring ideas surfaced with second cycle coding.

Analytic Memos

After each interview transcript was coded, after each observation session was completed, and the teacher self-reports submitted, the researcher synthesized the information into an analytical memo. Memos are a “record of analysis, thoughts, interpretations, questions, and directions for further data collection” (Strauss & Corbin, 1998, p. 110). Therefore, memoing allowed the researcher to synthesize the information analyzed and categorized in the initial open coding and axial coding process and reflect upon the data which in turn provided guidance for the direction of the study. Important themes were recognized during this process. There were 12 analytic memos produced using the initial and secondary coding processes to identify important ideas. Some examples of the analytic memo topics included teachers’ opinions and understandings of the definition of disciplinary literacy, technology as a double-edged sword, and technology’s impact on teaching social studies. Each memo provided a larger theme which could be supported by evidence from interviews, teacher self-reports, classroom observations, and analysis of artifacts.

Two doctoral students familiar with qualitative analysis with read and provide feedback of initial and secondary coding data. This feedback will be critical in the process for confirming the validity of the coding process and emergent themes. Sharing of themes and ideas with
teachers during the interview process will provide additional validity of findings. Suggestions for change or affirmation of coding results will bring an additional layer of validity and reliability to the data analysis. The researcher sent examples of selected transcripts to these volunteers for perusal. They responded via email with details and comments on their observations of the data analysis. The suggestions allowed the researcher to confirm her findings and provide clarity for coding which were vague to outside observers.

Summary

It was the purpose of this study to examine and make meaning of the decision-making and implementation processes middle school teachers employ while making technological, pedagogical, and instructional decisions to meet the needs of their middle school students and realize disciplinary literacy practices which incorporate the Common Core Standards. In order to address the research questions proposed in a valid and reliable way, three sources of data were collected and carefully coded and analyzed. Triangulation of data provided by interviews, observations, self-reports, and document/artifact analysis will allow for the confirmation of the validity of these methods. The following chapter will discuss the results of these findings.
CHAPTER 4

FINDINGS

This chapter summarizes the results of this case study. It begins with a descriptive summary of each teacher who participated in this investigation of disciplinary literacy and iPad technology followed by the results of data collected for each research question. Research Question 1 results are divided into two categories: teacher perceptions and teacher practice of DL. Research Question 2 results address teachers’ views of content, pedagogy, and technology to support DL practices in their instruction. Research Question 3 results present the findings of how teachers used iPads in their instruction inside the classroom and beyond.

This study began with an invitation sent to all middle school teachers (n=11) responsible for at least two sections of social studies in grades six through eight in School District 39. The invitation offered two phases of participation. Phase 1 required teachers to complete only an interview after reading an article describing the principles of disciplinary literacy in social studies. Phase 2 consisted of classroom observations, post-observation interviews, teacher self-reports, and artifacts gathered from Canvas, the district’s learning management system.

Table 6 provides demographic information about the teachers who agreed to participate in the study. Of the six teachers who volunteered, the first three teachers (highlighted in red text) participated in Phase 1 of the study only. They declined participation in the second phase citing time constraints and medical issues. The last three teachers (noted in blue text) participated in both phases of the study.
Table 6

Teacher Demographic Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>School Name</th>
<th>Grade Assignment</th>
<th>Years of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maggie McDonald</td>
<td>62</td>
<td>Songbird Middle School</td>
<td>6,7,8</td>
<td>24</td>
</tr>
<tr>
<td>Rick Schneider</td>
<td>44</td>
<td>Songbird Middle School</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Ruth Fisher</td>
<td>43</td>
<td>Songbird Middle School</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Jeff Moser</td>
<td>55</td>
<td>Nottingham Middle School</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Julie Hoffman</td>
<td>46</td>
<td>Nottingham Middle School</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Holly Fordham</td>
<td>30</td>
<td>Songbird Middle School</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

The following section provides a detailed description of each teacher in this study. All names have been changed to pseudonyms.

Teachers

Maggie McDonald

Maggie was a 62-year-old veteran teacher with curly strawberry blond hair and freckles sprinkled over her face. Her blue eyes sparkled with vitality and her easy smile and hearty laugh put the interviewer at ease. Maggie presented herself as a well-seasoned, well-spoken professional who was highly reflective in her speech and the thoughts she shared. She was especially articulate when communicating her educational philosophies and practices. Maggie, a long-time teacher at Songbird Middle School, was completing her last year of teaching and was looking forward to traveling in her retirement, something she frequently did as a teacher.
Maggie’s career began in an elementary school where she taught kindergarten and first grade. She later served as math department chair while teaching fifth and sixth grades. After several years as an elementary teacher, Maggie came to Songbird Middle School to work as a guidance counselor. Soon she missed spending time in the classroom; it was then she returned to teaching and started taking classes in gifted education. Earning a Master’s in gifted education qualified her to write curriculum for and teach a newly minted middle school gifted program. She was assigned to teach sixth, seventh, and eighth grade social studies and language arts. Her last 12 years have been in this teaching position.

Maggie continues to enjoy learning, as noted when she shared professional development classes she had attended and how she stayed informed of current events by continuous reading online. Her description of an excellent social studies teacher is one who “sow(s) some excitement” and “gets kids excited about the material” (Interview, September 21, 2016). Maggie’s own enjoyment of social studies extended from her to her students and appeared to spill over into her classroom.

Maggie’s view of technology was very positive. She saw technology as one way to address differences in students reading abilities. Since her teaching was no longer “tied to the textbook,” Maggie saw the Internet as a way for students to move away from content memorization and toward more inquiry-based learning (Interview, September 21, 2016). Maggie was quick to recognize the limitations and pitfalls of technology, but she also saw the capability of technology to individualize learning and take student learning “to the next level” (Interview, September 21, 2016).
Rick was a tall, solidly built, imposing figure with curly brown hair and a talkative nature. It was evident during the interview, and the frequent interruptions from students, that despite his size, he was a student-friendly, approachable teacher and popular track coach at Songbird Middle School. As an experienced 44-year old educator, Rick’s 19 years as a teacher were all spent at Songbird. He taught sixth grade for one year, and seventh grade for one year, but the remaining 17 years had been on the eighth-grade team teaching social studies. Besides coaching, Rick was responsible for Student Council and had served as co-chair of the social studies department over the past seven years. Rick was eager to share his views during the interview and gave lengthy descriptions of his thoughts on teaching, technology, and where he saw the future of the district and social studies curriculum headed. He was astutely in-tune with the goals of not only his school, but of the district as well.

Several times during the initial interview, Rick voiced his reservations about beginning the curriculum review cycle, the speed at which technology changed “in a heartbeat,” and the “double-edged sword” (Interview, September 27, 2016) of technology. Rick stated that technology could “open the door to anywhere,” so therefore it was the teacher’s job to help students from “going down the wrong path” (Interview, September 27, 2016). His thought was there was a lot of work for teachers on the front end to help students navigate information on the Internet, but once this was taught, students would be prepared for their future. Rick’s hope was that the district would be supportive of changes coming to the social studies curriculum. He voiced a need for professional development for teachers to make them feel comfortable with the shifts from content-based to an inquiry and skills-based method of teaching and learning. He
recognized the changes in the curriculum, saw the need for teachers to be prepared for the quickly changing landscape of technology, and identified the role of the school district as responsible for assisting the teachers’ transition to a technologically integrated and disciplinary literacy-based approach to social studies.

Ruth Fisher

Ruth had a pleasant round face and youthful appearance. She was a 42-year-old woman with a quiet, reserved manner during the interview. She had long, straight hair with bangs, and wore conservatively-styled clothing. Ruth was succinct in her responses and projected a self-deprecating attitude towards herself and her abilities.

Before becoming a teacher at Songbird Middle School, Ruth started teaching social studies to freshman at another suburban school north of Chicago. After teaching world history for one year, she was hired to teach seventh grade social studies, literature, and language arts at Songbird Middle School. Songbird is where Ruth has spent the past 18 years of her career. Ruth pursued her Master’s in Reading, not to be a reading specialist, but “to be a better social studies teacher” (Interview, September 27, 2016). She felt that in the past few years her focus had been more on staying current with teaching trends in reading, but Ruth was confident that these skills translated well into her social studies lessons. She saw her love of history as “the reading of stories,” like her love of literature (Interview, September 27, 2016). Ruth described excellent social studies teachers as those who can successfully combine content knowledge and effective reading strategies.

Ruth saw the potential of technology in the social studies classroom, but she also saw the need for teachers to be trained in how to best use this technology in their lessons. For Ruth,
although technology was important and relevant, she was not ready to rely solely on technology to accomplish her goals. Ruth explained that she still relied on paper and pencil for herself and students, and she preferred grading paper versions of student work rather than electronic copies. Ruth saw herself as a traditionalist who would eventually master technology, but she admitted she was reluctant to move forward until she was given the directive to do so.

Jeff Moser

Picture a tall, slight, 55-year-old dark-haired man with deep-set expressive brown eyes. Now picture a young Abraham Lincoln. Jeff Moser, a Civil War buff, bears a striking resemblance to America’s 16th President. Jeff’s carefully chosen and thoughtful conversation revealed an introspective and experienced educator. A world-traveler and teacher, Jeff started his career in Illinois, attended California State University to earn his master’s degree, and after three years of teaching high school back in Illinois, taught sixth through twelfth grades overseas in Thailand.

Four years ago, Jeff and his family moved back to Illinois, and he began teaching at Nottingham Middle School. Jeff’s main teaching assignment was social studies, but he also taught literature, language arts, and the gifted sections of eighth grade. Jeff’s calm demeanor and soft-spoken manner revealed an intense love of history exemplified by Jeff’s participation in civil war re-enactments, love of travel, and continuous pursuit of history via books, movies, and podcasts. Jeff’s careful and detailed responses while being interviewed often led to extra-long interview sessions and interesting off-topic conversations.
Jeff taught the same way he described an effective social studies teacher. He “[brought] content to life” (Interview, September 20, 2016) for his students with personal stories, personal travel pictures, and sharing his interests, like playing the guitar, in his classroom.

Jeff, like Rick, called technology the “double-edged sword” (Interview, September 20, 2017). Jeff saw the potential and the challenge presented by the 1:1 adoption of iPads in his classroom. He enjoyed the technological capability of offering differentiated lessons for his students and the flexibility of designing student-centered lessons. He expressed his own distain for history as a high school student due to the straight lecture and “mad-copying off the board” (Interview, September 20, 2016) he grew up with. For Jeff, the Internet and its vast expanse of information provided a new way to support his students’ search for historical resources. This shift to inquiry-based learning, according to him, needed to be balanced by careful use and teacher vigilance in the classroom to assure students were using the iPad for educational purposes and not game-playing or video-watching. This view, however, did not dampen Jeff’s enthusiasm for striving to incorporate technology into his lessons, assessments, and administrative tasks.

Julie Hoffman

A confident teacher with a no-nonsense type of personality best describes Julie Hoffman. Her quick-thinking and to-the-point responses during her interview reflected her logical and pragmatic approach to any situation. Julie, who voiced her rational thinking aloud, provided exceptional insight into her thinking processes. With straight blonde hair, alert blue eyes, and a soft voice, Julie was businesslike in her classroom management, but her calm and even nature softened her edges and made her popular with students.
At 46, teaching was Julie’s second career. She began her career in marketing and switched to education after her first child went to kindergarten. She earned a Master’s in Curriculum and Instruction with a focus on school leadership. Julie had taught eighth grade social studies, literature, and language arts for 19 years at Nottingham Middle School. She was qualified to teach gifted classes and co-taught a special education section of eighth grade social studies. Her leadership roles in the school included serving as social studies department chair and serving on Nottingham’s School Improvement Committee. Julie believed flexibility and creativity were important traits for a social studies teacher to have. She was very introspective about her practices and recognized the changes that were coming to her department in terms of curriculum and instruction. She saw the shift to students as “purveyors of their own resources” as one “that’s going to an effort in first grade and on up…a fifteen-year process” (Interview, September 22, 2016).

Julie regarded technology as “very, very, cool” (Interview, September 22, 2106). She saw the Internet as an endless resource for primary sources and termed this technology as “life-changing” (Interview, September 22, 2016) for social studies teachers. Julie saw technology as the factor that transformed her role as traditional teacher to that of a guide and facilitator.

Julie liked to use technology to accomplish administrative tasks, but she was careful to design assignments and assessments in ways that made her work easier, rather than more difficult. She described her use of technology as “strategic” because “it [didn’t] matter how magical it was” (Interview, September 22, 2016), she refused to stay up until midnight grading or requiring her students to do more work if she felt that was not necessary. For Julie, it was all about “trial and error” (Interview, September 22, 2016) to make technology work for her.
Holly Fordham

At 30, Holly Fordham was the youngest of the teachers in the study. She told of the widest variety of teaching experiences. An attractive young woman, with long brown hair and big brown eyes, Holly portrayed the image of an intelligent and dedicated professional. After graduating from the University of Illinois, she moved clear across the globe to teach second grade and then high school history in the Middle Eastern country of Bahrain. She started out as a second-grade teacher, which she remarked “was very outside of [her] comfort zone” (Interview, September 30, 2016). After staying in Bahrain to teach psychology and sociology to junior and seniors in high school, Holly came back to the Chicago Public Schools as a sixth, seventh, and eighth grade social studies teacher.

Starting as a seventh-grade teacher at Songbird Middle School had been a major transition for Holly. It was the first time in her career that she was on a team of teachers working together in the same subject area. Also, she was surprised by the amount of technology and resources available in her suburban school compared to her urban school. Holly spoke about her need to connect to the subject of history and with her students to spark their interest in social studies. She saw the importance of telling the “stories of history” (Interview, September 30, 2016) to students, and she valued connecting and collaborating with other social studies teachers online. Personal connections are at the core of Holly’s practice, which influenced her interview responses and her actions during classroom observations.

Out of all the teachers, Holly utilized technology in more ways and exhibited less reluctance or hesitation about the use of technology or iPads in her teaching practice or classroom. Being new to Songbird Middle School and the technological opportunities it
provided Holly and her students were, in her opinion, “pretty incredible” (Interview, September 30, 2016). Holly used the iPad for helping students stay organized, collecting daily feedback on student progress, and assessments. She used technology as a professional to communicate with other teachers online and to gather professional resources. Holly only pointed out the operational issues she had experienced with the technology in her classroom, but once those were solved, she saw only positives.

Findings

The findings are separated by research question. Each section is also divided into themes, with some sub-sections further split into evidence by the Phase 1 and Phase 2 teachers.

Research Question 1

What are middle school social studies teachers’ perceptions and practices regarding disciplinary literacy?

Interviews, observations, self-reports, and digital artifacts collected from the six teachers produced three overarching themes for Research Question 1. The first theme was that the teachers were unaware of the title, definition, principles, or practices referred to as DL. The second theme was teachers, after reading the article on DL principles and practices, could identify with DL principles and practices and how they supported CCSS and C3 standards, including their district’s social studies curriculum. The third theme revealed evidence of DL in teachers’ classroom practice despite their inability to recognize DL principles and practices by name.
Theme #1: Teachers Were Unaware of the Term “Disciplinary Literacy”

To gauge teachers’ awareness of the concept of DL, each of the six teachers participated in initial interviews based on the text-based verbal protocol process. Before the interviews were conducted, the teachers read an article about DL, then, they were asked questions about their understanding and classroom practices related to DL. It was clear from their initial responses that none of the teachers were familiar with the definition of DL, however, they did acknowledge familiarity with the practices outlined in the article as well as the exemplar lesson.

For instance, Maggie responded that she thought DL was “using all of our sets of skills in literacy” (Interview, September 21, 2016). When asked if she would have labeled the principles in the article as DL, Maggie laughed and said, “No, I didn’t label it as that - not at all. And I’m not even sure I defined it correctly!” (Interview, September 21, 2016). But, she explained that as she read the article, the principles of DL became clearer. With the curriculum shifting in the school district, Maggie saw that connections students were making between research and history had become the goal of her lessons. “All those things. It totally made sense [that] as I was reading the article, it’s something I embrace,” (Interview, September 21, 2016).

Despite being unfamiliar with the term DL, Maggie recognized certain teaching methods as part of the article’s exemplar lesson on immigration. She described the parallels between that lesson and her own unit on immigration.

It was very similar to what they did in there [the article] … we did all the same types of things to get the kids to think about something that affects everyone…It was very much what we did the time we were doing those thematic things…and what I try to do now. (Interview, September 21, 2016)

Rick, like Maggie, was not familiar with DL practices, but after reading the article made his own parallels. He compared DL in social studies to investigative journalism. Students “have
to figure out what the content it was released in, what was the time period, who’s around it, and
do the background work too, besides just taking what’s there at face value” (Interview,
September 27, 2016). He added that these skills would be strengthened if students learned to
recognize the differences between primary sources and the textbook; they would be able to
understand the source of the information, the purpose of the information, and why the
information was presented in a specific way. From this evidence, students would be able to draw
conclusions and see more than one side to a historical event. Rick’s conclusions show that he
understood the practices in a DL-based classroom. These were more than basic reading
strategies applied to traditional textbook sources. With DL, students were tasked with more in-
dept analysis of their reading materials.

Holly was distinctly different from Rick and Maggie in her response. She assumed the
article was going to be about applying traditional comprehension and reading skills to social
studies texts. But, as she read, she realized disciplinary literacy involved more than teaching
comprehension or notetaking skills. She expressed it best with this response:

I hadn’t heard the term [DL] itself…while reading it, there were a lot of things that a lot
of us are already doing, but I just hadn’t heard that term before…when I first read the title
of the article I thought it was going to be more about the idea of teaching about literacy,
more like reading skills than the content of history as opposed to student thinking as
historians. (Interview, September 30, 2016)

Holly also recognized that DL practices involved students participating in more
than rote memorization of facts or events.

The idea of disciplinary literacy is that instead of students just consuming, or being told
information, and…just learning the basics, like a fact, they are supposed to be acting
more like a historian and mirroring what a real historian does which is to learn about a
person, place, an event or topic through multiple primary and secondary sources…then
actually evaluating those sources…then trying to figure out for themselves what is an
argument they can make about that person or period of time or that event. (Interview,
September 30, 2016)
Jeff echoed Holly’s viewpoint when he described the teaching of history as “apprenticeship...trying to model what it means to be sorting out the truth” (Interview, September 20, 2016). However, he was the only teacher who thought the term DL should have had a different name. He explained,

I didn’t call it disciplinary literacy. I would have called it critical thinking skills or cooperative group work because the students were interacting over something they made. But, I think their larger point about history is not an agreed upon narrative, it’s a process, it’s a set of skills. (Interview, September 20, 2016)

Jeff recognized that DL was a set of practices which encompassed reading, writing, and thinking skills that are more complex than traditional social studies instructional methods.

Julie also saw DL-based instruction as more than traditional methods of teaching names and dates. Julie felt that DL was the “ability to find primary sources” and that students had to develop “discipline specific vocabulary” (Interview September 22, 2016). Like Rick, she felt that DL principles made sense and that students should be able to find primary sources and understand the perspectives of the different creators of the source. Julie suggested it was going to “take a very long time to help kids become purveyors of their own resources” (Interview, September 22, 2016), and she voiced her skepticism at these skills being taught solely at the middle school level. She felt that developing DL skills were a long-term undertaking and that it was “going to take an effort in first grade and on up...a fifteen-year process” (Interview, September 22, 2016). For Julie, teaching the necessary DL skills would start in first grade, and they needed be taught every year until 12th grade.

Ruth, whose background was as a reading specialist, had the least accurate description of DL of the six participants. She defined it as “getting kids to read within your content area...getting kids to read text that related to that specific topic” (Interview, September 27,
2016). Although this is part of DL practices and philosophy, it falls short of the primary aim of DL, which is having students read, write, and communicate in the practices and language of historians.

Theme 1 revealed all the teachers were unfamiliar with the specific term DL, but they did recognize the underlying principles and practices associated with this concept. Some were able to connect the practices in the article with their own practices and see the purpose of DL-based instruction. Not only were the teachers able to see that DL instruction is more complex than traditional social studies instruction, but they were also able to see how DL practices support the current trend in social studies standards and curriculum.

Theme #2: Teachers Recognized Connection of C3 Standards, Curriculum, and DL

The researcher felt it valuable to investigate teachers’ thoughts and beliefs about the relationship between the C3 Standards and DL because of the new direction Illinois was taking. During the course of this study, the state of Illinois mandated the revised social studies standards, which support inquiry-based practices and DL principles. All six teachers, who were aware of the new standards and the C3 Framework, recognized how the C3 standards and DL supported each other and had direct influence on the new curriculum.

Maggie, although not sure of her own definition of DL, saw the practices in the article’s exemplar lesson as supporting C3 Standards because students were “accountable for the skills, the research skills and the recording skills, that was what was really stressed. The kids saw a purpose to it…they were finding the bigger ideas and the questions” (Interview, September 30, 2016). She saw the C3 Standards as a guide for directing the writing of the new curriculum. The new standards were inquiry- and skill-based which supported her philosophy towards teaching
social studies. She liked that the content, when skill-centered, could be flexible, and was curious about what content and topics were going to be agreed upon by the teachers tasked with writing the new curriculum.

Rick’s interpretation of implementing the C3 Standards into the district curriculum was that once written, standards and practice would include more reading and writing with non-fiction texts. Also, he saw increased emphasis on critical thinking skills and the use of primary source documents. Rick commented that the C3 Standards would not only help teachers to develop student skills, but “force” teachers to teach in new ways because of the “direction it [was] going” (Interview, September 27, 2016).

Holly acknowledged the C3 Standards as requiring skills that included analyzing primary and secondary sources, as well as summarizing and determining the main idea as skills historians needed to have. However, she was a bit more skeptical about how the district would move itself and its teachers towards the C3 approach to social studies. She felt that “overall, in the field of social studies, it has moved toward standards and skills and not content…inquiry-based learning and not memorizing…I think there are still some [district] people married to the content” (Interview, September 30, 2016).

Holly articulated that DL practice, as supported by C3 Standards, included more inquiry- and research-based activities. She conveyed her connection of C3 and DL practices in this way:

It would really support and tie in [to DL] because a lot of the standards are related to a lot of these things…they are very related to the common core standards…They [new standards] are very broad, they’re very skills-based. There is nothing about content. A lot of them [the standards] are getting at if the students have these skills that a historian really needs to be a good historian to do history…So I think they [DL practices] tie in very well and are very supportive [of C3 standards]. (Interview, September 30, 2016)
Jeff thought that the movement towards DL practices would not only influence how students learned but would also “add some fuel to the fire” to help push teaching practices from “memorizing names and dates and famous people to actual historical skills and critical thinking skills” (Interview, September 20, 2016). He saw this as a positive move and believed that the C3 Standards would be a difficult transition for both teachers and students. For teachers, the skills required are more advanced than what they have been teaching, and for students, it would be a departure from the traditional ways social studies had been taught.

Julie cautiously viewed the transition as a positive one. “I think that we are broadening out what we are teaching much beyond history, which is the way we are structured right now and that’s a good thing, but I think it’s a big change” (Interview, September 22, 2016). Julie acknowledged that the new standards would require “using a method of inquiry in order to teach things” but that it would “be much more difficult to get there” (September 22, 2016). This did not discourage her as she also finished with the thought that the shift from traditional social studies to DL-based was “a good thing” (Interview, September 22, 2016).

Ruth and her colleagues, also aware of the change, had begun taking steps toward transitioning to the new curriculum. Ruth indicated that even though the district was not fully vested in curriculum revisions at that time, she and her fellow teachers at Songbird tried “to be cognizant of those CCSS” because they felt “the need to do it, not because someone [was] forcing it on us” (Interview, September 27, 2016). She believed that in the coming years the curriculum would steer the teachers and the curriculum into a more inquiry-based practice than what was currently being implemented. She saw that change was coming, but was going to wait until the district presented a formal curriculum before fully engaging in DL practices.
In summary, the teachers demonstrated their understanding that the CCSS and C3 framework supported aspects of DL. The teachers all agreed with the district’s curricular move towards a DL approach, although some were more reticent than others (Julie & Ruth).

**Theme #3: Evidence of Disciplinary Literacy in Teacher Perceptions and Practice**

Despite initial recognition that the term DL and the practices that support it were unfamiliar, deeper investigation into the teachers’ planning and classroom lessons showed evidence to refute this claim. That is, there was an observable disconnect between what teachers knew about DL theory and what was observed in the classroom. Therefore, the findings for this theme are divided into two sections. Three of the Phase 1 teachers (Maggie, Ruth, and Rick) only discussed their perceptions of practice in interviews, whereas Phase 2 teachers (Jeff, Julie and Holly) provided evidence of practice through self-reports, classroom observations, post-observation interviews, and digital artifacts collected from Canvas, the school’s learning management system.

**Phase 1: Teacher perceptions of DL.** Moje (2015) stated that “to teach disciplinary literacy, teachers need to involve learners in inquiry that allows the learners to gain insight into how questions are asked and examined and how conclusions are drawn supported, communicated, contested, and defended” (p. 257). Throughout their interviews, the Phase 1 teachers, Maggie, Rick, and Ruth, made many references to inquiry-based learning and teaching. In fact, all the teachers shared that helping students find and analyze primary source documents and draw conclusions from these sources provided more meaningful literacy practices. Even before the district curriculum was written for these teachers, they had been working on individual lessons that incorporated DL skills. They also expressed how their practice was going
to change once the new curriculum, based on the CCSS and C3 framework, was in place. Comments shared by the Phase 1 teachers during their interviews follow to support these claims.

For Maggie, how to address content, not the new standards, was a curiosity. She recognized that in the past, teachers in the district had difficulty with deciding how to spread content between specific grade levels. Teachers had “struggled with content and fought about content, and cried about content” (Interview, September 21, 2016). These conflicts may end, according to Maggie, because she saw the CCSS and C3 framework as promoting “inquiry skills that they [the students] are going to need…they can apply anywhere.” For Maggie, learning was heading towards inquiry-based activities - beyond just “Googling an answer.” She saw the future curriculum, if written with DL principles in mind, as an excellent way to get the CCSS and C3 framework standards into the curriculum and make teachers more accountable for them. Maggie concluded that “social studies is the perfect place to teach reading and writing because the material is already there…so not only [are teachers] teaching reading, but teaching understanding” (Interview, September 21, 2016). Maggie also recognized the application of social studies disciplinary practices to other academic areas. That is, she pointed to disciplinary literacy as the “skills of literacy” leading students to becoming more “literate in any discipline.”

In addition to seeing how future teaching would change, Maggie made references to DL in current classroom practices specifically pointing to the similarities between the exemplar lesson and her own teaching. Maggie pointed out that immigration…was one of our thematic units and it was very similar to what they did in there (the article). We did push and pull, but we just did all the same types of things to get the kids thinking about something that affects everyone…That was very much what we did at the time we were doing those thematic things…and what I try to do now…Although I probably do more, I take a country and go in depth on that country. (Interview, September 21, 2016)
For Maggie, the change to a DL-based curriculum would not be that drastic for her. She did not recognize the term DL, but she did engage in similar practices such as engaging students in work with primary source documents to form a claim and using evidence from the sources to support the claim. Maggie had already been incorporating some DL principles in her practice, therefore the change wasn’t going to impact her the same way it might other teachers, like Ruth.

Ruth was a bit more reluctant to embrace the change that she saw coming. She acknowledged the new curriculum, but it was not a focus for her at the time of the interview. She pointed out that she and her fellow teachers attempted to address Common Core and C3 when writing and teaching lessons, but it was not required. After attending a curriculum committee meeting, Ruth predicted that the social studies department would be “going more towards a skills-based, more reading-based” type of classroom (Interview, September 27, 2016). She understood that DL and the C3 standards were going to change the current way social studies was taught. Teaching and learning was changing to include “a lot more skills. It’s going to be more critical thinking. It’s going to be a lot more writing and reading of non-fiction text” (Interview, September 27, 2016).

Rick saw the shift coming as well. Although Rick did not see his teaching as making the transformation to address the C3 standards, he did describe a lesson he taught about the upcoming 2016 presidential election. His students were choosing a state to research and were exploring what current issues affected that state. Students also had to research the voting record of the state and predict how they thought state was going to vote in the Presidential election. This would all be shared with classmates via the Explain Everything (multimedia) app. This lesson clearly had components of DL, (i.e., students were engaging, examining, evaluating, and
communicating their ideas), but Rick did not categorize this lesson specifically as encompassing disciplinary literacy practices.

In summary, all Phase 1 teachers supported the move towards a disciplinary literacy approach to teaching and learning in social studies. With the knowledge that a new curriculum was coming, they described their attempts to transition to the new standards on their own without the support of the school district. They were also willing to begin the shift themselves regardless of the outcomes of district’s new curriculum being written.

Phase 2: Teacher perceptions and practices of DL. The Phase 2 teachers (Jeff, Julie, and Holly) initially did not recognize their practice as DL-based, similar to what was reported by the Phase 1 teachers (Maggie, Rick, and Ruth). However, the researcher found supporting data to suggest evidence of both DL principles and practices in the Phase 2 teachers’ lessons. These data were collected from Jeff, Julie, and Holly during four classroom observations that took place over two grading quarters (approximately five months). The evidence revealed classroom practices that aligned with the five principles of DL (McConachie & Petrosky, 2010) and the 4Es of disciplinary literacy (Moje, 2015). The findings that follow are organized accordingly.

Five Principles of Disciplinary Literacy

The five principles of disciplinary literacy provide teachers with the underlying philosophy of DL that drive instruction. During classroom observations, the researcher noted the objective of the lesson, what technology was used during the lesson, and evidence of each of the principles and practices of DL. Table 7 shows the data from the classroom observations. All 12 classroom observations provided evidence of some of the principles and practices of DL. Not all
the lessons contained every principle of DL, but over the course of the four observations per
teacher, a large portion of the teachers’ lessons engaged students in the practices of DL

For each instance of DL principles observed, the researcher recorded a detailed
description of the event. These activities were then categorized by the lesson and teacher. Each
lesson was further divided by instructional methodology. This methodology was given a title:
teacher led (TL), whole group (WG), small group (SG), student pairs (SP) or independent
student work (IS). Each lesson was entered in the table to show the crossover of pedagogical
practices combined with DL principles.

Table 7
Observational Evidence of the 5 Principles of DL

<table>
<thead>
<tr>
<th>Principle of DL</th>
<th>Jeff</th>
<th>Julie</th>
<th>Holly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle 1 Knowledge &amp; Thinking Must Go Hand in Hand</td>
<td>TL</td>
<td>TL</td>
<td>TL</td>
</tr>
<tr>
<td>Principle 2 Learning is Apprenticeship</td>
<td>TL</td>
<td>IS</td>
<td>TL</td>
</tr>
<tr>
<td>Principle 3 Teachers as Mentors</td>
<td>TL</td>
<td>TL</td>
<td>IS</td>
</tr>
<tr>
<td>Principle 4 Classroom Culture Socializes Intelligence</td>
<td>IS</td>
<td>SP</td>
<td>SG</td>
</tr>
<tr>
<td>Principle 5 Instruction &amp; Assessment Drive Each Other</td>
<td>SP</td>
<td>IS</td>
<td>IS</td>
</tr>
</tbody>
</table>

TL= Teacher Lead Instruction, WG = Whole Group, SG = Small Group, SP = Student Pairs, IS = Independent Student Work

Collectively, evidence in Table 7 reveals their lessons had a variety of activities selected
by the teachers. Most lessons started with teach led instruction followed by students working
independently or in small groups to complete activities. The culture Jeff, Julie, and Holly
created encouraged student engagement and independent thinking. Some lessons started with the
teacher giving examples or sharing content, but all ended with students working on assignments that involved higher-level thinking skills.

Teachers also completed self-report journals that documented the lesson objective, the technology they used for the lesson, and which factor was most important in planning. This data, along with access to the teachers’ Canvas pages and post-observation interviews provided additional evidence as to how the teachers incorporated DL principles and practices into their lessons.

**Principle 1: Knowledge and Thinking Must Go Hand in Hand**

Principle 1 is defined as “students learn core concepts and habit of inquiring, investigating, reasoning, reading, writing, and talking within history” (McConachie & Petrosky, 2010, p. 39). For this study, evidence of this principle would include lessons that engaged had the opportunity to read primary sources, develop theories, and then use evidence to support their claims. Also, there would be little use of traditional methods of teacher-led lectures, textbook-based reading, or rote memorization of people, places, and dates. In contrast, students would be encouraged to think, explore, and share what they have learned.

Jeff’s classroom learning activities showed visible evidence of the Principle 1. In all his lessons, there was a mix of teacher-led and independent student activities. Jeff described how he provided several lessons in critical reading skills, such as highlighting and annotating primary source documents so that students slowly built those skills independently. This scaffolding supported student practice and engaging in the intellectual work of historians. Jeff’s Canvas page and self-reports showed a variety of links to sources and learning activities that engaged students in higher-level thinking. For example, there were links to primary source documents,
political cartoons, and historical documentaries all related to the Cold War. Jeff used these examples to exemplify his expectation that his students learn by using primary sources to actively participate in the thinking and learning process in his classroom.

Julie, like Jeff, conducted lessons showing her unconscious understanding of how knowledge and thinking go hand in hand. During the first classroom observation, students wrote their own learning objective and researched on their own using the graphics from the textbook. Independent research and goal setting was the objective during the second observation, while students chose their own video to exemplify their understanding of the Cold War in the fourth and final observation. These lessons all encouraged students to set individual goals, work independently, and seek to further their own understanding of the topics.

Julie’s Canvas page and self-reports showed evidence of how she provided her students with links to primary source videos and documents. On the assignment page, there was a discussion board for the push/pull factors of immigration, a research report project on a corporation, and an assignment to write a letter to a soldier overseas. These artifacts showed that Julie’s students engaged in analysis of primary sources, strengthened their understanding of historical events, and engaged in activities that supported their understanding of history.

Lessons observed in Holly’s classroom also demonstrated Principle 1 -- knowledge and thinking go hand in hand. All four of her lessons involved student decision making and student choice. Students engaged in historical inquiry (i.e., reading and analyzing primary and secondary sources). They also read, wrote about, and discussed historical events. During the first observed lesson, Holly had students create a help wanted ad for the position of president. The lessons provided evidence of how Holly expected her students to use their analytical and communication skills to complete the objective that day.
Nine of Holly’s 37 entries on her self-report log were for links to primary source documents or videos for her students. The other entries showed many different learning activities (e.g., games, discussion boards, and research projects). Holly also had students complete daily bellringer and exit slips through her Canvas page. Her students were engaged in many different lessons that encouraged gaining knowledge and thinking in a variety of ways.

**Principle 2: Learning is Apprenticeship**

This principle guides the teacher to create learning experiences for students that are creative, in-depth, and encourage higher-level thinking skills. Specifically, Principle 2 guides teachers to select materials and create opportunities for students to “learn by doing history” (McConachie & Petrosky, 2010, p. 40). Students become apprenticed into the practice of historians when teachers develop lessons in which students use what they learn to construct and communicate their knowledge of the topic.

All four of the observed lessons in Jeff’s classroom used primary source documents as the basis for student learning. He provided his students with pictures, political cartoons, timelines, and primary source documents all related to the topic of the lesson. But, only two of the four lessons had students use those resources to produce their own products. One example of how students used primary source documents to support their own understanding was a lesson that had students develop a thesis related to the Cold War and Communism. Students used political cartoons and primary source texts to draw conclusions about this period in time and then supported their suppositions with evidence from the sources. Students were practicing, through apprenticeship, how real-life historians create narratives of historical events.
Julie’s lessons were similar to Jeff’s because the two teachers planned and taught the same curriculum. One unique lesson Julie created was called “I Wonder”. In this lesson, Julie created an end-of-unit activity in which students asked their own questions on a topic and searched for answers to their questions. She hoped this lesson would encourage students to examine their own thinking and become more comfortable using primary sources as way to address their own inquiry. Julie used this lesson to reinforce skills she taught all year, finding and interpreting primary sources as evidence to support inquiry. Students learned about history by engaging in inquiry. This was just one example of how she apprenticed students into the work authentic to the discipline of history.

In two of Holly’s observed lessons, she supported students’ inquiry and practices with curated resources and then asked her students to apply what they had learned in different ways. She developed one lesson with the goal of “getting students up and moving to fuel engagement…it was crucial…that students be involved and interested in the activity so they could have fun while making connections between content and real-life application” (Interview, January 18, 2017). In this lesson, students examined Supreme Court decisions regarding cases involving the Bill of Rights. After reading the actual cases, students identified the fundamental liberties protected by the Bill of Rights and created an opinion that supported or opposed the case. Students used these arguments to create a PowerPoint presentation to share with the class. Then Holly provided the actual ruling of the Supreme Court. Students were encouraged to keep “score” of how their choices matched with those of the actual outcomes. Students read, examined, discussed, and shared what they had learned about the Bill of Rights and the Supreme Court in this lesson. This lesson was supported by primary source documents and actual events in history, which supports the DL practice of learners as historian-apprentices.
Principle 3: Teachers as Mentors

According to this principle, the teacher’s role is to provide students with resources, models, practice, and support to help them develop their reading, writing, and thinking as historians. Jeff, Julie, and Holly all led lessons that gave students access to carefully chosen primary sources and the opportunity to expand their understanding of the topic being taught. All the observed lessons reflected the teacher as a guide or mentor rather than being dependent upon lecture or textbook-based activities. The teacher’s role in each classroom was as a coach and facilitator rather than a source of all knowledge.

For example, Jeff’s lessons provided demonstrations of how to complete tasks followed by student time to practice the skills. During class, he spent time addressing student questions and often drew examples from his own experience or life to share with his students. He shared his travel experiences with students, and for the lesson on jazz music, he brought in his guitar to play different jazz melodies for the class. He liked to conduct his lessons in creative ways commenting that as teachers, “We’re not just lecturing all this content that they need to regurgitate back… it [was] Friday and I was trying something fun and different” (Interview, January 20, 2017). According to Jeff, however, the downside of his creativity is that he has “a lot of good ideas, I’m not always good on the follow through. I throw a lot of interesting stuff at the kids, but I don’t always follow through with it” (Interview, January 20, 2017). Jeff saw his limits as an educator and mentor, but he also saw his personal journey as an example of the testament to his philosophy of learning as a lifelong endeavor.

Julie also provided carefully constructed examples of learning tasks and curated sources for student learning in her classroom. Julie as a mentor provided the lessons that supported
students’ independent thinking and learning. She felt it was her role to provide learning opportunities that encourage broader ranges of thinking above specific names, dates, and facts. She talked about how she was constantly reevaluating and changing her lessons to fit the needs of her students. For instance, while observing Lesson 2, Julie guided students in creating their own questions about the stock market crash of 1929. Students set goals related to which questions they were going to ask and how they were going to share their knowledge with others. This was evidence of her statement that social studies was not as much about facts as it was about higher-level thinking skills. These higher-level skills included mentoring students through an inquiry-based process which allowed students the practice of real-life social scientists.

As evidence of Principle 3, Holly saw herself as a mentor who supported her students’ learning. This was exemplified in her lesson on the Bill of Rights where her students created their own research questions, took one side of an issue, and then supported their opinions with evidence. Holly saw her role as one of “a mentor, facilitating student learning. I can prompt students to use the thinking strategies to ask questions, make inferences, and guide their own learning” (Interview January 18, 2017). For her, the ideas of reading primary and secondary sources was not new, but the asking of questions about the sources such as “Where did this source come from?” “Who was the intended audience?” and “Why did the source write it?” were challenging for her students since they were under the impression that the textbook was the ultimate authority on history (Interview, September 30, 2016). She knew it was her task to provide other sources and mentor her students on how to address the important questions beyond these sources.
Principle 4: Classroom Culture Socializes Intelligence

In a classroom that values intelligence, teachers are responsible for creating a climate of learning that values student participation in the learning process. Students are encouraged to learn from each other and are expected to participate in analysis and discussion of historical problems and issues.

The construct of classroom culture socializing intelligence was more evident in Jeff’s lessons than the other principles of DL. Student choice and students working independently were observed in three of out of the four observations. Students were expected to self-assess their own learning progress, while also being allowed to choose the level of difficulty of the lesson. Independent student discussion was an integral part of each lesson, while students were given the independence to choose how to plan and execute their projects.

Jeff felt the culture of the classroom was enhanced with differentiated learning. If he could demonstrate that a topic was worth learning and his students were enthusiastic, then he saw “a lot of good things about the culture of the class” (Interview, January 19, 2017). He described how a culture of real learning was not the traditional method of every student working at the same pace.

If you want everyone to do this…where you are going step-by-step through…that tends to iron out more of the behavior problems. But I think it’s not a true culture of learning. That’s something else…That’s useful for some things and at some times, but, we should admit that kids learn at different rates. (Interview, April 26, 2017)

Jeff recognized that students had more autonomy when they were engaged in the learning activity versus sitting and watching the teacher lecture. Jeff’s classroom was busy with conversation, collaborative learning, and differentiated lessons to engage all students.
Julie had started the process of creating a classroom that valued a culture of intelligence, even though she thought that the process to a true DL-based classroom would take a long time. She described how she used to give very specific lessons on German WWII propaganda and that every student completed the same poster project. She described how this had changed:

Now, you [student] come to me with what you are interested in learning about and get it approved and you can go for it. I don’t even care how you demonstrate how you learned it. So, the amount of student freedom is immensely different than it used to be. I’m not gone get 130 propaganda posters for WWII. I’m gonna get some people to interview their great-grandfather who was in the Japanese internment camp, and I’m gonna get some kid who just loves to know how some new weapon worked in WWII. They can do these things with a lot of accuracy without me having to be all concerned about it. I can be the facilitator. I don’t have to teach specific things anymore…I provide a structure and provide guidance. (Interview, September 22, 2016)

This example demonstrates how Julie created a culture of independent students who could explore their own interests and demonstrated their learning in their own way.

Holly stated that one of her goals was to create a classroom culture that encouraged open dialogue on content and issues. Students were taught to develop strategies that invited discussion and exploration of various topics. She also wanted her students to engage in various modes to demonstrate their learning. Holly created a classroom culture by offering assignments that addressed multiple intelligences and gave options for demonstrating learning in a variety of modes (i.e., verbal, written, and visual).

All of Holly’s observed lessons included student discussion with each other in partners or in small groups. She also arranged her desks in small groups, unlike Jeff or Julie, to promote student interaction. During lessons 1 and 4, she had students discussing, creating, and presenting what they learned with the Explain Everything app. Students created a multimedia document showing their learning. This created the expectation that students would develop their own understandings of a topic and present it in an organized manner. Student-directed learning and
independent thought support a culture of intelligence in Holly’s classroom. The culture shift in the classroom brought on by DL practices was also influencing how teachers assess student learning.

Principle 5: Instruction and Assessment Drive Each Other

All three teachers who were observed demonstrated the principle of assessment and learning driving each other. This principle underscores the importance of teachers using formative and summative assessments to craft lessons that relate to learning outcomes. Students are also expected to be part of the assessment process by reflecting on their learning and set goals for future learning. Jeff, Julie, and Holly all saw the importance of assessing what their students knew and how this would guide future lessons.

Evidence of instruction and assessment driving each other was observed most often in Holly’s classroom. Each class period started with a bellringer activity (a question or a reflection provided for student response based on the current lesson) that students completed and turned in electronically on Canvas. Students continually reflected on and processed their learning. After each day’s lesson, Holly reviewed the bell ringer responses along with an exit slip (also completed electronically). The exit slip consisted of a question related to some aspect of the day’s lesson. Holly analyzed student responses which allowed her to evaluate daily student learning, record student progress, and address any learning gaps that may have existed. Holly used these daily data sources to inform her lessons for the following day. She gave an example of how this process worked for her:

The exit slips really help me figure out if they [students] got what they were supposed to get out of it that day. If they watched a video clip and then they read something and I ask them a question for the exit slip and they can’t tell me what I’m looking for, or they got
something totally different, I know that I didn’t frame it [the learning] very well. So, I use that to help me determine if that [the lesson] was successful. (Interview, September 30, 2016)

Like Holly, Jeff’s lessons showed evidence of instruction and assessment driving each other. For his lesson on the economy of the 1920’s, he used the online website, Socrative, to assess students’ understanding of concepts and vocabulary. The results were analyzed to check student responses and their analysis skills. Jeff used this as an indication of students’ understanding of the content. He remarked that “they’ve absorbed more of the content than I actually thought they had done, which is good, but their analysis skills were weaker than what I hoped.” (Interview, December 16, 2016). These outcomes would help Jeff design future lessons with an emphasis on analytical skills. In lesson two, Jeff used the student responses to assess analysis skills. With the results, he provided support for struggling students. Jeff described how he used questioning strategies to gauge student understanding and used a Quizlet game to check on student comprehension of content. He pointed out that the content understanding was much stronger than he had assumed, while the analysis skills of some students needed more support.

Jeff spent time over the course of his units developing assessments that not only measured content but measured analytical skills as well. He had a multiple-choice quiz planned for his lesson on the Cold War, but explained that if he had more time, he would have created an assessment that was more closely aligned to the timeline activity students were practicing in class. Jeff admitted that it was more challenging to develop assessment to measure learning when the lesson is skills-based versus content-based. He felt that unless a teacher could sit and watch the student process and apply skills it made it difficult to create an accurate assessment.

Previous assessments led to a different structure of the learning activities in the final observation. Jeff was teaching about the Cold War and Communism. He differentiated the
lessons into three levels of complexity. The students were given the option to choose which level they wanted to tackle based on their placement in high school level of social studies they were assigned to in the coming fall. Jeff encouraged students to challenge themselves and “level up.” He felt that this culture of emphasizing intelligence alleviated classroom management issues and created an authentic “culture of learning” (Interview, April 25, 2017).

Julie described how designing effective assessments to measure growth in a culture of intelligence were becoming a challenge. These changes had influenced her teaching practices. She still used rubrics for many of her assessments, but the content that was becoming less of a focus, which complicated how she assessed student learning. She described how her assessments were becoming less about content, and more about skills. In the past, Julie would have asked specific content related questions, but she had “decided since they [students] have access to that information, that specific information, that when they need it they will go and get it. I’m looking for the big idea” (Interview, January 19, 2017). Julie recognized the need to change the curriculum from content-driven to skills-based curriculum and had tailored her assessments to reflect this change.

Another example of assessment driving learning was in lesson three. Julie gave a practice quiz of four questions pertaining to the Cold War, and depending on student responses, she was going to design the lesson the following day to address any gaps in learning. Another method she used to gather data on student understanding was observed in lesson four, which included a discussion to help Julie assess students’ understanding of the Vietnam War. The outcome of the brief class discussion determined her focus of the lesson for the next day.

In summary, the data gathered through classroom observations, interviews, as well as examination of teacher self-reports and Canvas pages revealed evidence of the five principles
that guide DL practices in the classroom. Researcher observations and supporting data documented evidence of these principles even when teachers were unaware of these connections on their own. In addition to examining how teachers applied the principles of DL, the following section examines how teachers incorporated DL practices into their lessons and instruction.

4Es of Disciplinary Literacy

Observations of Moje’s (2015) 4Es of disciplinary literacy were also documented during classroom observations and post-observation interviews. The 4Es serve as a guide to the practices of incorporating DL theory into instruction. If teachers 1) engage their students in social studies content and practices of historians, 2) engineer lessons which engage their students in social studies, 3) help students examine the vocabulary and engage in discourse as historians, and 4) assist students with evaluating the value and purpose of these discourses, the teachers will have successfully embedded the 4Es into their instruction. The following descriptions, based on classroom visits, observation notes, and post-observation interviews detail the results collected from Phase 2 of the study.

First E: Engage

In Jeff’s classroom, the fourth lesson best exemplified the first “E” of disciplinary literacy: Engage. Students were examining primary source documents related to post WWII. They had a choice of different forms of media: photos, cartoons, and news articles. Students were required to create a thesis and support it with conclusions from these primary sources. The results were then presented in a written form. These activities indicated Jeff’s use of various methods to engage students in the learning.
Observations in Julie’s social studies classroom, like Jeff’s, indicated specific evidence of students engaging in DL practices. In all four lessons, students were asked to explore various questions or problems. These lessons included an “I Wonder” activity that required students to further explore their own questions about WWI. In another lesson, students demonstrated, with proof from primary sources, what they understood about the Stock Market Crash of the 1920’s, and a lesson in which students compared post-war Germany and America. All of Julie’s lessons presented a question or had students creating their own questions to explore which resulted in students working with primary source documents. These included visual data from the textbook, primary source posters and photographs gathered from the Internet, and video clips of historical events. Students used analytical, summarizing, and synthesizing skills to interpret these primary sources. The results were then presented to the teacher in various ways. Lesson 1 had students sketching their own WWI propaganda poster, while lesson four had students analyzing and completing a chart of five video clips of the Cold War. These lessons showed evidence that Julie engaged students in one aspect of DL as practiced by real-life historians.

Over the course of all four visits to Holly’s classroom, Holly’s classroom like Jeff and Julie’s, provided observable evidence of students engaging in DL-based learning over the course of all four visits. They practiced using primary source documents to create their own interpretation of the qualifications for the job of president. They analyzed, discussed, and defended their opinions of key Supreme Court rulings on cases and compared their own life to that of an instance of genocide in Africa. Lesson three required students to interview participants of the Mexican Revolution and then explain the person’s significance to the event. Holly recognized that to deepen students’ engagement in social studies practice, students had to create their own resources instead of “passively taking them in” (Interview, December 16, 2016).
Holly had students create a digital help wanted ad and an Explain Everything multi-media presentation to share with other students in the class and to communicate their understanding of government and history. All the lessons required students to examine primary source documents, interpret their meanings, and to convey findings in a specific way – all forms of engagement.

Second E: Elicit/Engineer

The second “E” of Moje’s (2015) heuristic of DL, engineering and eliciting lessons that encourage disciplinary literacy practices in the classroom, were evident in all four of Jeff’s lessons. There was reading and writing in multiple media forms. Student participated in discussions and worked with primary sources. They were exposed to vocabulary specific to historical time periods in American history (i.e. Black Friday, the Depression, the Cold War, etc.). The only practice of DL that was not observed was communication of learning with an audience outside of the classroom. The audience was restricted to the teacher, although sharing with classmates may have been part of the work but was not specifically observed during the four lessons.

Julie and Jeff shared the same curriculum, therefore eliciting and engineering knowledge and skills along with the practices of DL were also embedded in the lessons observed in Julie’s classroom. Students explored various visual and textual primary sources, engaged in discussions with classmates and presented their findings of research. During her interview Julie described her role as the teacher in this process if the new curriculum required more use of primary source documents.

Especially in the beginning years, I’m gonna have to give them [students] those different perspectives and provide very limited access to primary sources so I know they are using the right ones…I think it’s going to require a need to go through and identify accurate
information for them first or provide a limited pool of information. You kind of want to
guide them (September 22, 2016).

Julie had already started to make sure that students carried out the practices of historians
in her classroom on a consistent basis, but she had an interesting perspective on moving away
from content. During her post-observation interviews she talked about how much content there
is in history and how difficult it’s becoming to choose what to teach. The development of
curriculum that focused on inquiry skills instead of content Julie felt that “it [was] dumbing it
[learning] down, but you are teaching other skills…But it’s high-level- if you are able to
synthesize and analyze, that’s way more important” (Interview, January 19, 2017). Julie saw the
value of placing skills above content to create meaningful learning experiences for her students.

Like Julie and Jeff, Holly carefully chose primary sources or other supporting documents
for each lesson. She gave students texts and visuals that provided necessary information that
allowed them to draw to their own conclusions and support their conclusions using evidence
from the sources. For example, in Lesson 2 she chose specific controversial Supreme Court
cases and had students identify how these applied to the Bill of Rights. In Lesson 4 she
presented facts about the genocide in Rwanda, allowing students to draw conclusions about the
impact of those events. These practices exemplified how she culled sources of information
which allowed her to design a learning experience like how historians would conduct research.

For example, Holly provided the background information on people relevant to the Mexican
Revolution as a springboard for the learning activity. Each student took the background
information and was responsible for that role in student interviews. Students then shared what
they had learned and connected it with a list of various profile questions about the people.
Students learned about people who contributed to and stakeholders in the Mexican Revolution.
They were people of the revolution and simultaneously were historians—uncovering facts about the people, place, and events in history. With her careful construction or engineering of this lesson, Holly was able take a large amount of information and create a learning activity that was fun and engaging for all her students.

Third and Fourth E: Examine and Evaluate

Examining and evaluating the usefulness of the language and vocabulary of social studies are the third and fourth construct of Moje’s (2015) DL heuristic. Moje’s (2015) definition and explanation of these constructs are broad and vague, therefore, the researcher chose to compact them together. Examination is the ways in which teachers help students identify and use the words, phrases, and symbols of a discipline. Evaluation is the way students learn to identify when and why the discourses of a discipline would be used. The researcher chose to view these constructs as how and when teachers used vocabulary and discourse to support DL practices in their instruction.

These constructs are evident in the lessons that Jeff created. He provided and curated sources for students to use in their learning about historical events. Visual primary sources of period photographs and posters were examined through the lens of an acronym PERMIT (i.e. political, economic, religious, military, ideological, and technological views). Students analyzed the picture or poster and identified the purpose of visual and support it with evidence. They used the words and symbols of the 1920’s to make meaning about the time period. Jeff assisted his students in the analysis of the primary sources and used words like jazz, Black Friday, and prohibition. These all had specific definitions which gave clues to significance of the source and how they related to the historical time. Most enjoyable in this observation was Jeff playing his
guitar to show students how jazz differs from other types of music. This exemplified an auditory primary source and how it could be incorporated into the classroom.

In another lesson, students chose events of the Cold War that best represented that time period. Students evaluated and supported their choices by constructing their own timelines of the Cold War. All lessons encouraged student to engage, examine, and evaluate multiple primary sources and engage with the words, phrases, and symbols to present their analyses in discussion and writing. Jeff explained how students needed to understand the importance of places and events to create the timelines. In the past he would have “gone through a PowerPoint…[with] a couple of things that happened in Russia…and in Cuba, the Bay of Pigs, and the Russian missile crisis” (Interview, March 21, 2017). In this lesson, the students were responsible for finding the key events themselves with Jim providing guidance with assessments based on his interpretation of key people, places, and events.

Julie’s lessons also included examining and evaluating a historian’s vocabulary and discourse. Students all understood and used the vocabulary such as primary source documents, propaganda, and bias. Observations of lessons 1, 2, and 3 had students analyzing and interpreting primary sources for accuracy and to support their own questions or theories. Students needed to be able to use and apply understanding to events in the 1920s, 30s, and 40s. The events of these decades became part of their understanding of events such as Black Friday, prohibition, the Great Depression, and the Holocaust. Without an understanding of these words, the students would not have been able to pose questions, analyze sources, or support claims surrounding these events. A lesson that was not observed but described by Julie following lesson 4, was a visit from a local Vietnam veteran. The students engaged in discussion with a guest speaker and listened to first-hand accounts of the Vietnam War. This interaction provided a live
primary source for Julie’s students and gave them insight into how people can be a source of valuable historical knowledge. Students could practice first-hand how historians use discourse, like interviews, to develop an understanding of people and events. This first-hand account provided a source for students to explore or examine a historical event for themselves and added to their personal understanding of the Vietnam War.

Julie also described a lesson she taught comparing post-war Germany to the United States. She described how she “constructed it [the lesson] in such a way that it went from broad to narrow [then] narrow back to broad…we used primary sources and they talked about bias and things like that…They’ll be able to compare two ideas” (Interview, March 16, 2017). This was how Julie addressed examining and evaluating social studies discourse and the phrase “bias” in her classroom.

Students in Holly’s classroom, like Jeff’s and Julie’s, also used the “words, phrases, and discourses” (Moje, 2015, p. 269) of the discipline in their interactions with each other. They were encouraged to state their opinions, used primary sources to support their opinions and viewpoints, and presented their findings in various ways including visual and audio formats. The use of primary source documents like the Constitution, Supreme Court rulings and documentary footage of historical events engaged students in the sources and conversations pertaining to real history. Holly’s lessons encouraged students to observe, ponder, and discuss with others the relevance of these events and sources. Holly credited the success of her lesson as giving “students an opportunity to demonstrate mastery of objectives in a different way…[students] had to show that they understood the concepts enough to speak confidently about them…they also had to make visual connections to those concepts to bring it together” (Interview, May 5, 2017).
Holly showed her students the practices of historians in the real world. More specifically how to engage in the vocabulary, symbols, and discourse like a social scientist.

All three teachers utilized the practices of Moje’s (2015) 4Es of the disciplinary literacy model. Regardless of the teachers’ understanding of the label of disciplinary literacy, classroom observations provided evidence of teachers conducting lessons that provided practice for their students to read, write, and communicate as historians. The vocabulary used by teachers and students, the examination of primary source documents, and the communication of findings all supported the social and cultural world of social scientists.

Summary of Research Question 1

The findings from Research Question 1 established the fact that all six teachers in the preliminary interviews did not recognize the term DL. After reading the article provided by the researcher, all teachers related to the principles and practices of DL and how these were tied to CCSS and C3 framework. When questioned, all the teachers could make connections between DL practices and their district’s shift towards this theoretical methodology in its new curriculum. All six teachers were also able to identify DL principles in their instructional practices, while the three Phase 2 teachers provided additional data to support evidence of DL principles in their classrooms during observations. Additional data collected through teacher self-reports, Canvas postings, and post-observation interviews provided evidence that showed while teachers may have been unaware of the term DL, they were indeed incorporating these principles into their instructional practices.
Research Question 2
How do middle school social studies teachers integrate technological, pedagogical, and content area knowledge together in their instruction to support disciplinary literacy practices?

Research Question 2 explored how teachers integrated technology into their lessons and its relationship to DL-based content and pedagogy. This question explored the interrelatedness of Mishra and Kohler’s (2006) TPACK model and teachers’ use of technology, pedagogy, and content knowledge when planning and implementing lessons. Data provided by interviews, self-reports, classroom observations, and digital artifacts from Canvas revealed two main themes. The first theme was teachers reported content knowledge as being more important in lesson planning than technology and pedagogy. The second theme revealed teachers used technology to support their DL instruction and engage students in their classrooms.

Theme # 1: Importance of Content Knowledge in Planning and Practice

All the teachers in the study self-selected content as the key element when planning and teaching lessons. The following data have been divided into the two phases. Phase 1 results are from Ruth, Rick, and Maggie who only participated in the text-based protocol interview portions of the study. Phase 2 teachers – Jeff, Julie, and Maggie – participated in both phases through interviews, self-reports, classroom observations, and sharing Canvas websites. The purpose of this division is to distinguish between teachers’ perceptions of their practices and concrete data collected from artifacts and classroom observations.

Phase 1: Teachers perceptions of TPACK and lesson planning. Of the six teachers participating in this study, Ruth was most definitive in her response during Phase 1 interviews. She was adamant that in her decision-making, content was first and foremost in her mind when
planning lessons. She responded in her interview that “we don’t think technology first. We think ‘what are the objectives’ or ‘what do we want them to know’, and then ‘how can technology enhance it?’” (Interview, September 26, 2016). She did not describe any particular lesson during the interview to support this point, but the other teachers did in detail.

Rick’s response paralleled Ruth’s as he described how technology was the last consideration when lesson-planning. Rick confirmed this by explaining his first step in planning a typical lesson plan was to ask himself what resources he had and then he looked to see what technology he could add to supplement. He tried to plan engaging activities for each unit, modifying older lessons to “make [them] a little more technologically compatible without losing sight of the objective” (Interview, September 27, 2016). With the assumption his students came to his class already understanding how to utilize their iPads, he didn’t see the need to teach any of the technology or apps for students to use. This shows how Rick placed content and methodology as his main focus of his planning, since he believed his students didn’t need assistance with the technological components of his lessons. This belief stemmed from his role as an eighth-grade teacher. The sixth and seventh grade teachers at Songbird Middle School divided up the responsibility of teaching the students how to use iPad apps. The social studies teachers were responsible for teaching Notability, a notetaking and editing app. Rick trusted that his eighth-grade students had acquired those skills, therefore he did not spend any class time demonstrating how to use the iPad or its apps/programs.

The only exception he could remember of designing a lesson with technology first was a lesson on 9/11. He stated it was “probably the first time we ever went with technology first” (Interview, September 27, 2106). He described how for this lesson he started his planning with searching online for lesson plan ideas, then used the video clips to support his objective.
Although Rick felt it was difficult to develop new lessons with technology, he believed he was competent in substituting technology for current practices.

Unlike Rick, Maggie found integration of technology into her lessons came easily. She started her planning focused on the content objective of the lesson then added technology. Yet when asked to describe the actual process, she answered that when she planned a lesson using the iPad, she did not consider the technology piece. She remarked, “I don’t know that I ever [think of the technology] - because when I’m using it - I’m integrating technology” (Interview, September 21, 2016). That is, she integrated technology at a level which didn’t appear to her as separate from content in her planning.

In their initial interviews, Ruth, Rick, and Maggie recognized technology as a part of their lessons in social studies. They all acknowledged that content and pedagogy were consciously chosen as the most important factor over technology when planning lessons. The Phase 2 teachers (Jeff, Julie, and Holly) also supported this same practice in their interviews, self-reports, and classroom observations.

**Phase 2: Teacher perceptions and practices of TPACK and lesson planning.** Jeff, Julie, and Holly participated in the more in-depth portion of the study and provided more evidence to support the first theme: content knowledge and pedagogy were more important to teachers than technology when planning and executing lessons. In addition to participating in the initial interviews, Phase 2 data sources included teacher self-reports, classroom observations, and Canvas artifacts. Jeff, Julie, and Holly also completed self-report logs that documented lessons incorporating technology. They recorded the lesson objective, listed the technology they used, and then identified technology, pedagogy, or content as the primary focus of the lesson. Finally, the teachers were asked to identify which component of the TPACK model (technological
knowledge, pedagogical knowledge, or content knowledge) was most influential when planning lessons.

Table 8 shows the results feedback from the teachers’ self-reports. During the study, teachers in Phase 2 were asked to record lessons that incorporated technology. The teachers recorded the objective of the lesson, the technology they used, and then they which aspect of TPACK (i.e., technology, pedagogy, or content knowledge) was most prevalent in their minds when planning the lesson. The following table shows the results. It summarizes the total number of lessons reported by each teacher and the number of times each teacher chose technology, pedagogy or content as most relevant to the lesson. These responses provided an understanding of which component of the TPACK model was the most influential factor when planning.

Table 8

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Total Number of Entries</th>
<th>Technology</th>
<th>Pedagogy</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeff</td>
<td>36</td>
<td>8</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Julie</td>
<td>31</td>
<td>5</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Holly</td>
<td>37</td>
<td>9</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Totals</td>
<td>104</td>
<td>22</td>
<td>34</td>
<td>52</td>
</tr>
</tbody>
</table>

All Phase 2 teachers – Jeff, Julie, and Holly – chose content knowledge as the most important factor when planning a lesson. Methodology was second most important to the teachers when planning lessons that incorporated technology. Technology was chosen least
often, which is interesting considering all the lessons incorporated some form of technology. The results also indicated that content knowledge, then pedagogical knowledge, were chosen over technological knowledge as the main focus of these teachers’ lessons. It is evident that what the teachers were teaching and how they were going to teach it was most important to them. The results of the self-report data were supported by the initial interviews and the post-classroom observation interviews as well.

Jeff was one of the teachers who identified content as the most important aspect of the lesson in 17 out of 36 self-reported lesson entries. Additional data sources, such as his post-observation interviews, supported his claim that technology as a means of delivering the content was integral to the objective of the lesson. He explained that the technology allowed him to design differentiated assignments for students that would have been very difficult without technology. He could scaffold the requirements for an assignment, (i.e. three different levels) and post the assignments to individual groups of students. One such lesson was his last observation, which focused on the Cold War and communism.

What I liked about this lesson was it was tiered. It had different levels of depth and complexity for the students which is what the iPad is all about. We can deliver those [lessons] and the students…can learn at their different levels. (Interview, April 26, 2017)

With the Canvas website, Jeff was able to create three different assignments and easily generate three groups of students. The technology allowed him to post the differentiated assignments to each group of students. This ability to assign different levels of the same assignment and keep this information invisible to the students was important to meeting students’ needs without singling them out.

Classroom observations also supported Jeff’s choice of content and methodology over technology. Lesson objectives were focused on content rather than how to use the technology.
For instance, in lesson one, Jeff’s objective was: You will be able to assess your current understanding of the developing culture by developing reading skills and finding main ideas. Jeff’s lesson started with an example of WWI propaganda posters and a shared analysis of this visual. After this practice, students were given a choice of two visual sources for which they conducted their own analysis. This lesson had technology embedded in its objective, but Jeff felt that the focus was on the content and development of analysis skills. Throughout this study, Jeff and the other teachers felt technology was necessary, but not the main focus of their lessons.

Julie chose 19 out of 31 lessons focusing on content over pedagogy or technology. In support of these findings, she communicated during interviews that it was difficult for her to distinguish the importance of one aspect over the other. For example, when asked which aspect of TPACK was most important to Lesson 2 on the Stock Market crash of the 1920s, she initially chose content. Then she changed her mind:

I would have to say content…I don’t know if it’s just content because what I wanted them to do is to be able to match a primary source…find a primary source that was good evidence for what they thought was good evidence for that idea. So, it’s not just content because you want them to sort through vast quantities of things available. (Interview, January 19, 2017)

The interview turned to a discussion of which was more important- content knowledge or the skill being taught. She commented that because “she was not testing them,” it was not the content that was important. Then she said that she wanted them “to have a vague idea of content, but [she’s] not looking for them to have a lot of detail in content…but it is really important that their [students] primary source support their summary which is basically their claim” (Interview, January 19, 2017). She continued that if she were assessing content that is what she would grade for, but if she were assessing the skill of summarizing, she would only “be checking their [the students’] content knowledge when they finished their summaries. I would just be checking to
see if their summaries are generally accurate” (Interview, January 19, 2017). Julie’s interview presented an interesting point. The teacher’s lessons and choices were not easily compartmentalized into simple categories. These aspects of lessons overlap and may not be neatly framed in the TPACK model.

When reflecting on her lessons, Julie saw technology not only as an integrated aspect of lesson planning but also as the way students approached learning in her classroom. She elaborated on this by explaining how the goal was for students to think about overall learning objective and decide for themselves where they need clarification or wanted more information…Students are becoming accustomed to these ‘I Wonder’ assignments for each unit. I am hoping that they are starting to think about what they are curious about while learning about the topic at hand so when I give them time to ‘wonder’ they already have something that interests them. With the addition of technology, the activities have a different focus. (Interview, September 22, 2017)

This philosophy was evident in Julie’s observed lesson 1 which she titled “I Wonder”. Her objective for this lesson was: Students will interpret visual images from chapter 9 graphic assignment and complete “I Wonder” WWI Research. This lesson allowed students to analyze textbook data then choose the content of their own research and explore the Internet for answers. Julie was flexible in her content delivery, and this pedagogy allowed students to use technology as a source that supported self-directed learning.

Like Jeff and Julie, Holly responded that content and methodology took precedent over technology in three out of the four classroom observations. For her, content was most important, followed by methodology then technology. She also identified content knowledge as most important in 16 out of 37 self-reported entries. Out of all three Phase Two teachers, Holly identified methodology as more closely related to lesson planning than content or technology in 15 out of 37 entries. Despite her self-report results, Holly declared that she did not see
technology as a separate component in her planning process or her lessons. “Technology is so accessible with student iPads, so in planning it was a given” (Interview, December 16, 2016).

One lesson observed which supported Holly’s claim was during the fourth visit. The objective of this lesson was as follows: Identify and explain factors and stages of the genocide in Rwanda and explain how Rwanda colonial history contributed to genocide. Holly started the lesson with a PowerPoint slideshow to deliver a short lecture on the history of the Hutu and Tutsi tribes in Africa. Using this information, students answered questions and supported their responses in an audiovisual format using the app Explain Everything. Holly utilized iPad technology in this lesson to support her objective.

In the post-observation interview for this lesson, however, Holly voiced contradictory views on which component of TPACK was most influential in the lesson planning process. When responding to how she planned the lesson she explained,

I planned this lesson with the goal of having students answer questions about the background of the Rwandan genocide in a manner that took advantage of different technologies. The purpose was to solidify understanding of key groups and events…students were to use the app Explain Everything to record themselves answering questions, explaining, and giving background on the conflict over supporting visuals…technology was one of the most important aspects of this lesson. (Interview, May 18, 2017)

For Holly, the technology was the focus because it gave students engaging options to demonstrate what they had learned. She reinforced this in the interview by explaining “technology was critical in the implementation of the lesson. Students had to use an interactive app to create their mini-projects which allowed them to be engaged and invested in the outcome” (Interview, May 18, 2017). This lesson provided an example of how Holly viewed technology as a way to engage her students in the content of the lesson.
Theme 1 summary. Theme 1 revealed all six teachers identified content as the driving force behind their lessons. When asked whether technology, pedagogy, or content knowledge was most influential when planning, they all chose the content of a lesson as the most important aspect. Pedagogical and technological knowledge were the second and third factors influencing the teachers’ planning choices. This position was supported by the results of the interviews, self-reports, and classroom observations. Additional findings showed that TPACK supported the teachers’ instruction and student engagement in DL instruction.

Theme #2: TPACK to Support DL Instruction and Student Engagement

Theme 2 resulted from analysis of the data gathered from interviews, observations, and artifacts from Canvas. The outcome showed that technology, specifically the iPad, enhanced instruction. Jeff, Holly, Maggie, and Rick described how current lessons’ content and pedagogy, compared to older lessons, would not have been possible without iPads or Internet accessibility. They all also extolled the virtues of the iPad and the Internet when implementing lessons in their classrooms.

Phase 1 and 2 teachers: Technology used to support instruction. For example, Jeff made references to how technology improved implementation of traditional lessons in history class. “Tech like iPads and Quizlet are a step-up on the paper and pencil notetaking we used to do ourselves as students, so it is beneficial to the students that we continue to modify and refine as new tech arrives” (Interview, September 20, 2016). He recalled how lessons in the past would have been different without technology.

In the old days, you and I would have gone through a Powerpoint and ‘here’s a couple of things that happened in Russia, and here’s a few things that happened in Cuba, the Bay of Pigs, and the Russian missile crisis.’ Where they were finding some of that themselves.
We just misplaced the physical documents that this lesson is based on. But with the technology we have, it doesn’t really matter because even if we lost the digital copy we could just go online and find something similar that would work. So, the nice thing is for teachers is that you can do this type of lesson and next year I already have four levels prepared. So even if you were creating a lesson from scratch, it would take a long time to assemble all those sources. (Interview, April 26, 2017)

Jeff saw current technology as a way to differentiate his lessons that was not possible before the iPad and the Internet. With Canvas, he was able to post various resources and group students according to ability levels. He customized the assignments he posted on Canvas. The assignments looked similar but were customized to fit the ability level of the students. This practice supported the principle of assessment driving learning and learning driving assessment.

Holly, like the other teachers, considered technology a positive addition to lesson planning. The ability to use technology and provide students access to directions, notes, or guiding questions in one place made planning and implementing lessons very easy and efficient. She commented that it was “hard to imagine teaching in a time before we had so much access to resources and seeing what other people [use] that works for them” (Interview, September 30, 2016). She also used technology to keep up with current events and find resources that would interest her students and connect them with the world. Examining and evaluating data are key to students practicing inquiry-based learning skills, and she was able to create her own resources and then post the lists of resources on Canvas. She felt that this was preferable to having students do a Google search on their own, which she felt was overwhelming for many students.

Maggie, like Holly, thought technology added value to her lessons. According to Maggie, a social studies teacher needed to be “up on [their] game” when it came to teaching with technology (Interview, September 21, 2016). She explained that she used technology
during her plan time to find updated materials online and searching for lessons that incorporated technology.

I do read a lot of things on the Internet, like current publications, and I try to stay abreast with the news. I think…teaching can consume you, and when teaching social studies every place you go you’re like ‘how can I use that in the classroom?’ or you can find something that’s kind of cool and that might grab the kids. You should continually research and look at the issues that are current and how I do that…CNN Student News is good, I like to preview that before I show them. (Interview, September 27, 2016)

Technology enabled her to plan interactive activities more often and share resources with her students much easier than before. For instance, iPads allowed Maggie to bring many text and visual resources to students without the need for paper or whole class videos. She used an article about the Chicago Teacher’s Union as an example. In the past, Maggie would have had to run off copies of the article for the students or make an overhead copy to project for the students. But with the iPad, Maggie could project the article and annotate or highlight it for students while they did the same on their iPads.

Like yesterday, there was an article that said the Chicago Teachers’ Union was going to strike October 11…now I can go in and do that. I wouldn’t have been able to do that the day after. I can pull it [article] up on the overhead and analyze it. (Interview, September 27, 2016)

She saw this method as “perfect” for bringing in timely information related to their unit on labor unions.

Rick also found success using iPad technology in his classroom. In his words, iPads were “vital … I don’t see how this [teaching social studies] can be successful without it” (Interview, September 27, 2016). He described a language arts lesson that integrated volunteer opportunities students were required to do with technology. Using a program called Charity Navigator, the students learned how to research various viewpoints on a topic. He described the lesson:
In language arts, we’re doing a charity paper on volunteering for a charity and they have to into Charity Navigator…They also have to go through the library website and learn how to access opposing viewpoints and research an opposing viewpoint for key words and certain issues, and certain articles. They have to review articles and review websites, and review pictures. We spent a lot of time in language arts, but I also kept in the back of my mind, ‘we’re going to be using this in social studies down the road anyway.’ It just transfers over. (Interview, September 27, 2016)

Rick noted how the navigation skills learned in this lesson would easily transfer to his social studies classes.

The technology piece [of the lesson] …they are spending a lot of time on their iPads doing research through opposing viewpoints, websites, and Charity Navigator, I’m going to switch that when we do it in social studies. I’m going to pinpoint social studies-specific websites that they can target. (Interview, September 27, 2016).

Once Rick spent the time and effort designing a lesson for one content area class, he saw the transferability of these skills to other content area classes. Rick appreciated how technology provided easy adaptability and transfer of DL and research skills from one content area class to another.

Ruth agreed with the other teachers that iPads as one way to bring “so many awesome things…into our classroom like primary sources and videos or just little things…that enhance what they’re [the students] learning and give them visual context to relate to” (Interview, September 26, 2016). Ruth spoke in generalities and did not elaborate on any specific lessons that had improved with use of technology. She thought technology and its use in social studies was an “amazing resource” (Interview, September 26, 2016) particularly when implementing DL-based lessons like the one in the article she had read for the interview.

**Phase 2 teachers: TPACK to support DL instruction and student engagement.** Phase 2 teachers – Jeff, Julie, and Holly – discussed not only the use of the iPad in the classroom, but they demonstrated specific ways this technology could be utilized to enhance DL instruction in
classroom observations. The interviews, self-reports, classroom observations, and Canvas artifacts all show evidence that the teachers all conducted lessons employing the aspects of Moje’s (2015) Engagement of students, even though they did not see this connection for themselves. Moje’s model provided the basis for supporting these findings. In her model, she separated engagement into six components:

1. Problem framing
2. Working with data
3. Using varied media to consult and produce multiple texts
4. Analyzing, summarizing, and synthesizing findings
5. Examining and evaluating claims
6. Communicating claims (p. 262)

These six components provided evidence of the use of engagement in DL practices in teachers’ instructional practices and classroom lessons.

To help clarify the relationship of TPACK and engagement, Table 9 captures the observational evidence showing how teachers used technology and content to practice EL-based instruction in the classroom, including alignments to Moje’s (2015) components of Engagement.

Table 9 reveals how Phase 2 teachers used iPads to support various aspects of DL practices and engaged students in those practices. Additionally, the table supports all aspects of student engagement, most strongly the ability of students to work with data, with various forms of media, and with a variety of texts. The teachers used technology to connect students with historical data and primary sources, and it allowed students to share their learning with the teacher and other students. Technology made the dissemination of this information much easier than it had been in the past, as noted by Julie. She contended that the lessons she taught would
not be as engaging or even possible without technology. She described a lesson that focused on independent thinking and exploration. This activity encouraged inquiry-based pursuits driven by individual student interest, which is at the heart of DL.

Technology allows me to give an open-ended assignment and allows me to require primary sources because I know they can find these on their own. Earlier in the year we worked on how to find accurate primary sources. Now I’m saying I want you to and be more of a historian…and I wouldn’t have done that 10 years ago. 10 years ago, I did that chart. They would have to record it and give the source. But I’m not giving the source. I’m going more towards the ‘make the claim from what you read and show me proof and explain it.’ (Interview, December 10, 2016)

Julie’s lessons addressed engagement by supporting her students making a claim, using primary source documents for support, and communicating their findings. These activities apprenticed her students as historians-in-training. The addition of technology helped make her lessons more DL-focused than in the past.

Jeff also described how technology allowed him to expand his DL-practices in his classroom. His lessons embodied the use of a variety of data, which according to Moje (2015), is a critical to DL practices. Students need “opportunities to collect and work with the materials, phenomena…and texts that constitute data in the discipline” (p. 264). He described how technology had changed his teaching:

Ten years ago, maybe teachers...put on a CD or VHS…You could have a discussion after watching a video segment or something. Or you could use audio recordings of things. But probably the main technology used ten years ago was mimeographed Xerox machines and kids would have articles to look at beyond the textbook. Where now I would say the most important change is flexibility and interactivity. You can, for example, instead of having one article and one set of questions for kids to interact with, you can have different kids at different levels reading different levels of complexity. (Interview, September 20, 2016)

Providing these primary sources for students allowed them the opportunity to engage with data for examination, evaluation, and communication with others.
Table 9
Observational Evidence of Teacher’s Classroom Practice Aligned with Moje’s Engagement

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Lesson</th>
<th>Content/Topic</th>
<th>iPad App</th>
<th>Problem framing</th>
<th>Working with data</th>
<th>Using media and text</th>
<th>Analyzing, summarizing, and synthesizing</th>
<th>Examining and evaluating</th>
<th>Communicating claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeff</td>
<td>1</td>
<td>WWI</td>
<td>Powerpoint, Notability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1930’s economy</td>
<td>Socrative, Notability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Cold War</td>
<td>Canvas PDF, Notability, various websites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Cold War/Communism</td>
<td>Canvas PDFs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Julie</td>
<td>1</td>
<td>WWI</td>
<td>YouTube, Notability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1920’s Stock Market Crash</td>
<td>Canvas Discussion YouTube videos About.com website</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Postwar America vs. Postwar Germany</td>
<td>Canvas Quiz YouTube videos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Cold War</td>
<td>Notability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holly</td>
<td>1</td>
<td>Constitution/President</td>
<td>Canvas PDF, YouTube videos, websites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Supreme Court/Bill of Rights</td>
<td>Powerpoint, Notability, Canvas PDFs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Mexican Revolution</td>
<td>YouTube, Canvas PDFs, Notability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Rwandan Genocide</td>
<td>Powerpoint, YouTube, Explain Everything</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Holly, like Julie and Jeff, also used the iPad to support DL-instruction and student engagement. She explained how specific use of iPad technology could make her lessons more engaging for over traditional written question/answer activities. One example of this was during a classroom observation. She used the iPads to allow students to theorize their understanding and communicate their findings via multimedia technology. In Lesson 4, students took digital notes on Rwandan genocide and created a theory, supported the theory with evidence, and then
communicated their findings with an Explain Everything presentation. This lesson showed how technology supported all 6 components of student engagement.

The students submitted their final answers electronically to Holly for evaluation. Holly described her satisfaction with this lesson during her post-observation interview:

The lesson was successful in giving students an opportunity to demonstrate mastery of objectives in a different way. Students couldn’t just regurgitate bits and pieces to put together a written answer but had to show that they understood the concepts enough to speak confidently about them in a recording. They also had to make visual connections to those concepts to bring it together. (Interview, May 17, 2017)

She felt that completing a lesson in this way addressed “students who are stronger verbally or visually [the ability] to access those intelligences and build confidence” (Interview, May 18, 2017). This lesson was an excellent example of how teachers could address all components of Engagement in a social studies classroom.

**Theme 2 Summary.** Theme 2 evidence showed that teachers use of iPads to support DL-based instruction and engage students in these practices. Teacher feedback, as well as data provided by interviews, self-reports, classroom observations, and Canvas artifacts reinforced the teachers’ abilities to combine technological, pedagogical, and content knowledge together in their lessons. iPad technology was an important component of the teachers’ practices as it allowed for teachers to share and communicate primary source documents, videos, and visual information to studies with ease, while also allowing students unlimited access to sources for evidence to support learning. These components of inquiry-based learning are at the heart of DL and a curriculum which supports C3 standards and practices.
Summary of Research Question 2

The findings of Research Question 2 revealed that all the teachers in this case study expressed their inclination to choose content knowledge over pedagogy and technology when preparing lessons. Although the teachers identified content as the most important factor when developing lessons, they understood that the methodology and technology were also important to achieving their social studies objectives. They also felt that technology gave their students easier access to a wide range of resources and was a way to enhance student engagement. Even though Research Question 1 revealed that the teachers were not familiar with the term DL, the results of Research Question 2 showed they were able to incorporate these practices into their classroom with the help and support of iPad technology.

Research Question 3
How do middle school social studies teachers integrate iPad technology into their instruction?

Research Question 3 delved into how teachers integrated the iPad in their instruction. Findings gathered from initial interviews, classroom observations, post-observation interviews, teacher self-reports, and artifacts from the teachers’ Canvas pages produced two main themes. The first theme was that the teachers’ most common use of the iPad was to support their instruction. The second theme was that the teachers used the iPad as a tool to find and share content with students not only during class, but also as an extension to that instructional time.

The evidence which supported these themes is presented after a brief description of School District 34’s 1:1 iPad initiative. This background information gives context to the adoption of iPad technology and describes how teachers were prepared before and during early implementation of iPads in their classrooms.
The iPad initiative provided all middle school teachers and students in District 34 with an iPad. For communication and storage purposes, each iPad recipient was assigned a Google email account and unlimited storage on Google drive. Starting in sixth grade, students were issued the iPad and were allowed to keep it until graduating in eighth grade.

The district had taken steps over the first several years to strengthen its control of student access to inappropriate websites by blocking use of social media apps and placing filters on the search engines—even when students used their iPads at home. To ensure that all students followed the technology use agreement, the iPads were locked to prevent any outside apps or games from being downloaded. However, each student had access to specific school-approved iPad programs and apps as well as 24-hour access to Canvas and HomeAccess (the gradebook).

The teachers, unlike the students, were given more freedom when it came to downloading apps and using the iPads outside of the school network. They were able to download any apps and did not have the filters blocking Internet use on their iPads. In fact, teachers were encouraged to use all the district-approved programs and apps as well as make suggestions to the district for new apps they liked and wanted to use with their students. The teachers in this study had taken advantage of the opportunities to hone their technological skills with trainings and using technology support personnel within their schools. As the first two years passed, the teachers had become very comfortable with the use of the iPad in their classrooms.

This study took place during the third year of the initiative, so with the original technological and usage issues behind them, the district and teachers were starting to see the benefits of the iPad adoption program. One of these benefits, written into the new teacher contract and part of the 1:1 iPad initiative policy, were two days of professional development focused on technology at the start of the school year. In the years following the start of the
initiative, the district provided in-house training during institute days and over the summer. District 34 viewed technology training as an ongoing process, and there were tech assistants and technology coaches hired for each school in the district.

The teachers themselves were given the flexibility to decide how much they wanted to use the iPad and Canvas beyond the basic district expectation to maintain a webpage and post daily homework assignments. In order to adhere to district policy, all six teachers maintained a Canvas page for each class and used technology for communication and instruction. These uses are illustrated in Table 10. This visual representation of iPad specific apps and uses were reported by the teachers in the interviews, self-reports, classroom observations, and artifacts from Canvas pages during the study.

The iPad offered a wide variety of opportunities for teachers to create and implement lessons using technology. Teachers used the iPad to support instruction, create engaging lessons, and assess student progress. Canvas allowed teachers to post classroom information such as homework assignments, announcements to students, class discussions, and a calendar for assignments and assessments. Speedgrader and Quizlet gave teachers the option to assess students and provide feedback via rubrics in digital form. Explain Everything, PowerPoint, iMovie, and Apple TV were used by teachers and students to support instruction and learning to the teacher or a classroom audience. Apple Classroom and Google Docs gave teachers the ability to monitor students work and iPads while in the classroom and working in groups. All of these programs and apps were supported by Google Suite which provided word processing, spreadsheet, and slideshow document storage that could be saved and/or shared with other students and teachers. The table summarized the wide variety of tools the teachers and students had available to accomplish instructional and learning goals. Of all the uses, data showed the
most common uses of the iPad were to support instruction and deliver content to students while in and outside of the classroom.

Table 10
Teacher Use of iPad Technology

<table>
<thead>
<tr>
<th>Program/App</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canvas (Learning Management System)</td>
<td>Post homework assignments</td>
</tr>
<tr>
<td></td>
<td>Create calendar events</td>
</tr>
<tr>
<td></td>
<td>Post PDFs</td>
</tr>
<tr>
<td></td>
<td>Post video links</td>
</tr>
<tr>
<td></td>
<td>Assign bell ringer/exit slips</td>
</tr>
<tr>
<td></td>
<td>Administer formative and summative assessments</td>
</tr>
<tr>
<td></td>
<td>Create surveys</td>
</tr>
<tr>
<td></td>
<td>Create and post rubrics/criteria for success</td>
</tr>
<tr>
<td></td>
<td>Maintain gradebook</td>
</tr>
<tr>
<td></td>
<td>Post announcements</td>
</tr>
<tr>
<td></td>
<td>Post calendar events</td>
</tr>
<tr>
<td></td>
<td>Create student discussion boards</td>
</tr>
<tr>
<td></td>
<td>Share teacher-created content</td>
</tr>
<tr>
<td>Speedgrader</td>
<td>Grade student work/assessments</td>
</tr>
<tr>
<td>Notability</td>
<td>Import text/photos for annotation</td>
</tr>
<tr>
<td>Explain Everything</td>
<td>Create multimedia presentations</td>
</tr>
<tr>
<td>PowerPoint</td>
<td>Create slideshow/media presentations</td>
</tr>
<tr>
<td>Quizlet</td>
<td>Provide assessment practice for individuals and groups</td>
</tr>
<tr>
<td></td>
<td>(electronic flashcards)</td>
</tr>
<tr>
<td>iMovie</td>
<td>Create videos</td>
</tr>
<tr>
<td>Apple TV</td>
<td>Classroom projector</td>
</tr>
<tr>
<td>Apple Classroom</td>
<td>Monitor student iPads</td>
</tr>
<tr>
<td>Google G Suite</td>
<td>Create and store documents, slideshows, and spreadsheets</td>
</tr>
</tbody>
</table>

Theme #1: iPad Provided Instructional Support

A common use of the iPad was as a tool to support teacher instruction. Data provided by interviews, teacher self-reports, and artifacts from Canvas illustrated how the teachers used the iPads to adapt content and pedagogy to create learning connections for their students. The three most common uses of the iPad to support instructional practices were to find and share primary
sources, assist with communication between teachers and students, and administration and grading of assignments and assessments.

Starkey’s (2010) model of teachers’ pedagogical reasoning and action for the digital age addressed how teachers prepared for instruction by creating connections between students and the content. This component of lesson planning included selecting appropriate resources, enabling learning opportunities, creating connections between learners, and adapting personalized learning resources for students. If viewed through this lens, all six teachers discussed, reported, and demonstrated their technological and pedagogical knowledge in practice. Teachers most commonly referenced the selection of appropriate primary source resources as one of the aspects they liked about the iPad.

**iPad supported instruction: Primary sources.** Primary sources are the foundation for inquiry-based learning in social studies, and all six teachers in this study referenced how easily the iPads brought primary sources to their students. Both Holly and Maggie described the iPad and the Internet with the same perspective. For them, technology provided students with a vast array of resources right “at their fingertips” (Interviews, September 21 and September 30, 2016). It was this endless source of resources attainable with the press of a finger that led teachers to use the iPad more consistently in their classrooms than relying on textbooks.

With each student having an iPad, Maggie saw it as a powerful resource that made book learning obsolete. She referred to the textbook, which was over 10 years old, as an outdated resource. The iPad brought unlimited resources to the classroom and the possibility to teach with a differentiated approach. She described how technology could help support students who struggle to read by offering different versions of the same information.
We are not limiting them with readability. I think for those primary documents and primary sources, it’s perfect. You can find testimonies of people depending on what you’re studying. I know you can find some interviews with immigrants that the kids could listen to and watch. I think that it would really open up a lot of different way to look at something rather than giving kids an article. (Interview, September 21, 2016)

Maggie also saw the potential of the iPad to address student curiosity. For example, if a student asked her a question that she could not answer, she had the ability to say, “Let’s look it up” and to build on her students’ individual interests (Interview, September 21, 2016). No matter what the question, there was a way for her students to find an answer. Unlike a textbook, students had access to unlimited resources.

Holly also saw the iPad as a better instructional support when compared to a textbook. Her opinion was almost word-for-word like Maggie’s. She liked how everything could be accomplished “through that one piece of technology. It’s [information] at their fingertips right in front of them” (Interview, September 30, 2016). Furthermore, she felt that the flexibility to use the iPad during class and the variety of primary sources available “opened up a whole new world” for students. She liked how she could support students in their research without making stacks paper copies of resources.

Holly also used the iPad to help students find videos and read primary and secondary sources. She stated that the iPad made learning in her classroom “so much more rich and engaging and important to students” (Interview, September 30, 2016), although her self-report log may have contradicted this belief. Only 10 out of 37 entries of her Canvas posts included links to primary source documents, websites, or videos. This showed that even though she stated how much she used the iPad for connecting students with primary sources, in practice she only used it for one-third of her lessons or assignments.
Jeff, like Holly, described and demonstrated how the iPad allowed him to bring various primary source documents to his students. He gave the example of a lesson for which he had students use their iPads to access digital primary sources on the Chinese railroad workers. The students used their iPads to read and annotate the texts. He explained he could also bring in different perspectives using the technology…They [the students] were using YouTube, and they can take snapshots of critical moments from the building of the railroad and pull them in Notability and annotate them. Those are some of the things they can do. (Interview, September 20, 2016)

Jeff’s comments, like Maggie and Holly’s, reflect his use of primary sources which allowed students to have individualized learning experiences. His self-report entries supported this belief about the iPad and primary sources. His entries showed 25 of the 36 lessons he logged were to deliver primary source documents, links to documents, or links to videos on YouTube. Jeff could bolster his instruction with direct links to primary sources and described how easily he could disseminate these sources to students. The combination of iPad and Internet access to primary sources supported his lessons which connected students with content.

Ruth also considered iPad affordances essential to her ability to find appropriate content for her students. She described the access to primary sources from the Internet as “amazing because… the amount of sources that you have…exposure to that you can get your hands-on…like these different stories from different people, no matter what you’re teaching” (Interview, September 27, 2016). She saw how the resources available with technology supported her instruction, no matter what topic she was teaching. Like Maggie and Holly, Ruth saw the flexibility and availability of resources on the iPads to support learning. Her students could use it to find answers to questions in a way that a textbook could not.
Julie, like the other teachers, also described the possibility of resources available online. She described how iPads brought primary sources to her students:

I think the ability to access all of those primary sources is very, very, cool. I don’t have to have a textbook or one source that is their only resources. I mean we have infinite amounts of resources. They can be in the Library of Congress looking at everything that’s in that collection...I can have them going into diaries and personal journals that aren’t even published by a mainstream publisher. They can seek out their own sources that I wasn’t aware of. It really makes it an infinite resource out there... For social studies, I think the technology is life-changing. (September 22, 2016)

Her opinion was high when she described the availability of resources for her students, but her practice showed a more tempered version of support. Only 11 out of 31 entries in Julie’s self-report log showed that she used technology to delivery of links or primary source documents. She reported using technology for delivery of primary sources more than Holly, but significantly less than Jeff. The interview process did not address the self-report logs; therefore, it is difficult to explain the differences between opinion and self-reported practices.

When asked about how the iPad supported his instruction, Rick had a more interesting perspective. Rather than focus on how he used the iPad to find resources, he described how he felt he needed more support from the school district to improve his instruction. He knew that technology made access and sharing of primary resources much easier, but he was the only teacher who thought teachers needed a “refresher course on how to get through the research and find things on the Internet...resources, websites, and other apps” (Interview, September 27, 2016). He reflected that he personally could use support, not to learn the content, but how to deliver that content and make the content accessible and relevant for his students. He wanted help to make sure he was bringing the right primary sources to his students, and felt the district had some responsibility in helping him do so. His instruction he described was sound, but he expressed how he wanted reassurance he was on the right path.
Regardless of how these six teachers used the iPad to support instruction with primary sources, they made it clear that the iPad and ability to access the Internet gave them and their students unlimited learning resources. The data showed that the teachers not only used the iPad to support instruction using primary sources for teaching and learning, but also used it to provide a path of improved communication with students.

iPad-supported instruction: Online discussions. iPad technology changed the way students accessed information, but it also changed the way they communicated and shared their learning with their teachers and each other. Rick, Holly, Ruth related the advantages of using the iPad to support the practice of using classroom discussions to support instruction.

According to Rick, communication with the iPad led to greater depth of sharing and discussion. (Interview, September 27, 2016). He felt his students found it easier to be more open and honest through discussion on Canvas. He liked how students can be more open and less subject to judgement, but he cautioned that there was a loss of face-to-face communication skills. He also lamented his inability to be part of live discussions if they took place outside of the classroom. He admitted he enjoyed being together in a room with students, something that technology cannot replicate. However, Rick also appreciated the use of iPads for online discussions.

It's easier for them to respond to discussions through your [sic] iPad and…not hide …it’s a lot easier to be more honest and open…through discussion on Canvas...Technology also opens up that avenue for them to discuss freely without people staring at them and without that look of judgement. (Interview, September 27, 2016)

Rick described that even though the iPad change has been fast, iPads were beneficial to how his students communicated what they had learned. He felt that if students could “focus on something that work[ed] for them…it’s going to be invaluable (Interview, September 27, 2016).
He saw the potential of technology as a way to support student learning once they developed the skills to use it in a way that was beneficial.

Holly also saw the instructional use of the discussion component of Canvas as a window into students’ thoughts and opinions. She believed the students were more willing to open up about issues in the online forum, which has helped them connect to other classmates in ways that they do not in the classroom. Holly thought online discussions were a great tool to demonstrate their [the students] own learning. You can have online discussions…and then they can do anonymous discussion where they can actually talk, but they don’t feel so nervous. I find I have a lot more kids who are willing to express their opinions…They’re not scared to say what they think or how they feel because they feel protected, which can be a good thing. I think that it’s really helped them connect and relate. Technology has been one of the best things for social studies…it’s been awesome for it. (Interview, September 30, 2016)

Although none of the 36 entries in her self-report journal assignments were related to student discussion, Holly felt that iPads were a positive way for her students to interact with the content and each other. Her view wasn’t during discussion, but as a communication tool for what students had learned. She was one teacher that did not show concern for technology replacing classroom discussions.

Like Rick and Holly, Ruth also used the iPad to support instruction and learning with online discussions. She gave an example of how she used the iPad to assign a student discussion about political cartoons. Students posted an analysis of a cartoon, but before they could see how other students responded to their posts, they first had to comment on two other posts. This methodology ensured that all students participated in the discussion. Canvas also allowed her to format the discussions so that she could see students’ identities, but their names were hidden from their classmates. She felt that the anonymity gave students the freedom to express
themselves without pressure from peers, and she used student responses in a discussion format to assess student learning.

Julie also used Canvas discussion to help students communicate their opinion of a WWII movie. She described how she used to have students make a paper movie ticket and rate the movie. The iPad and Canvas have allowed her to convert this assignment into an electronic version, which she described in detail:

I used to have them do a theater admission ticket with the basic information about the movie on it…But everybody would do the same thing…So a discussion question they are going to give a response and describe what they saw, whether it had an impact - things like that in a paragraph on Canvas…I can go through and…it’s superfast for me. The goal is for them is to process emotionally different perspectives, and they can do that using Canvas discussion. (Interview, September 22, 2016)

Julie also used Ruth’s method of having a student respond to two others before he/she could post themselves. And like Holly, Julie described how using discussion is a good way for more introverted students to express themselves.

Teachers used the iPad in many ways to support instruction with technology as a communication tool between themselves and their students. In additional advantage to their instruction was the way the iPad provided discussion opportunities for students to demonstrate their learning. These uses gave teachers a way to assess student learning beyond the traditional paper-and-pencil methods and classroom discussions.

iPad supported instruction: Assessment. Starkey’s (2010) model separates evaluation/assessment during instruction into its own category titled “teaching and learning” (p. 243). This category encompassed formative and summative assessments as well as the process teachers used to modify evaluations and use the results to provide feedback to students. This use of the iPad for instruction, specifically student assessment also ties to a key principle of
disciplinary literacy of using assessment to drive the learning and using learning to drive assessment. Teachers explained how they used the iPad to simplify their assessments and design lessons based on assessment results.

In this study, three of the six teachers, who were coincidentally in Phase 2 of the study, described how likely they were to use the iPads to grade student work and administer student assessments.

Holly, the youngest teacher, was the most enthusiastic about using the iPad for instruction and assessments. She stated she used the iPad “for everything” (Interview, September 30, 2016). She used the iPad daily for assessment of student learning by starting and ending every class period with a bell ringer and exit slip. These electronic documents presented questions for students, who then posted their feedback for Holly to assess. She explained the process:

I do it through the iPad so I can collect them all and check them all fairly quickly versus doing everything on paper. So, I assess them a lot. That way from day-to-day…[there’s] in exit slip that would be tied directly to it [the lesson] …It’s very quick so I can go through it and check if they got it or do I need to spend more time or who needs extra help. (Interview, September 30, 2016)

Holly’s self-report showed one entry for one quiz and two entries for links to review games to help students prepare for an assessment. It appeared that the bulk of her assessments were gathered from daily bell ringers and exit slips. Learning and assessment went hand-in-hand on a daily in her classroom.

Four of Jeff’s self-report entries were to help students review content for an upcoming quiz, one linked students to a rubric used to assess their analysis of a timeline project, and another shared a student exemplar of text annotations. These entries showed how Jeff used Canvas as a tool to support his formative and summative assessments. He stated:
I had the kids go on Canvas and I had them click on a Quizlet link I created…we are going to have a quiz on Western Expansion…That’s a nice organized list that has definitions on it and functions as a study guide…I picked out four or five of the terms that were more complex like supply and demand, inflation, deflation…and I talked specifically how that tied into the Western economy. (Interview, September 20, 2016)

Jeff’s use of vocabulary related to history is an excellent example of students examining and evaluating the discourse of the discipline. This correlates directly with Moje’s (2015) third and fourth E of DL practice. He also commented on how technology makes is easier for him to assess his students’ learning and provided his students with immediate feedback.

A thing I can say about that is technology is helpful on the teacher end too because apps on the iPad like Quizlet and Socrative. Those are ways I can have my students take formative assessments and get the data, get the scores, and it’s graded electronically. They can see that quickly, and they can go to what they missed. It’s one of the things that there is some hope there for in some ways that weren’t there when we were growing up.

He saw the affordances of the iPad to gather data about his students as well as a way for them to understand where they are in the learning process.

Julie also stated how easy it was for her to assess student learning with the iPad. She described how a previous assignment having students create a movie ticket on paper, but with the iPad she could collect data electronically through Canvas discussion:

I used to have them do a theater admission ticket. They would rate it [the movie] and things like that…but I don’t want it to be a big art project. I want it to be a quick watch of the movie and get another perspective, verify that you did it and move on. In a discussion question they are going to give a response and describe what they saw, whether it had an impact, things like that in a paragraph on Canvas. I can go through and check ‘got it, got it, got it’. It’s superfast for me. I’m not collecting all kinds of papers from kids that I should now display because they spent time on it. That’s not really my goal. The goal is for them to process emotionally different perspectives and they can do that using Canvas discussion…It’s pretty quick for me. I like doing it that way.” (Interview, September 22, 2016)

Julie’s self-report entries supported her view that she also used the iPad and Canvas to assess student learning. Her self-recorded data showed she shared two rubrics, two student
exemplars, and two assessments with students. All the entries supported her use of technology to assess her students.

Canvas not only provided teachers with the means to evaluate student work through discussion and assessments, but to grade assignments and post the results to an electronic gradebook. After posting grades to Canvas, the teachers could download the grades into the official district gradebook (school).

The three teachers in Phase 1 (Ruth, Maggie, and Rick) of the study were least likely to use technology for assessment. Ruth stated she only used electronic quizzes for her geography quizzes. Maggie, who used the iPad for many other things, did not use the iPad for any assessments. She revealed that most of her quizzes and tests were essays and in written response format, which she preferred to administer on paper.

Rick, when asked whether he used technology for assessment, responded:

I haven’t used it much. But that’s me- I like to see their grade change because I’m a visual person. When I enter a grade…I can see how much it effects their overall grade-whether it’s moving up or down. So, I’m not a big fan of Canvas.

It appeared that Rick confused administering assessments via technology with keeping track of grades in the electronic gradebook. This made drawing a conclusion about his use of technology for assessment from him difficult to do.

The teachers in this study used the iPad to assess and grade student learning, but they were all at different stages of adopting this use in their practice. Some still held onto traditional ways of assessing and documenting assessments and assignments. The results of this case study showed how these teachers used the iPad in a variety of ways to support instruction. The iPad and the Internet was used to curate and share primary sources with students. It also supplied a wellspring of primary and secondary source information for students as well. The teachers also
used the iPad to extend or supplement classroom discussions. This online method was believed to be beneficial to reluctant speakers in their classrooms. Additionally, the teachers used the iPad to assess students’ progress quickly and efficiently. This was key to providing feedback on lessons and data to shape future lessons. Teachers in this case study all showed how they used the iPad to support many aspects of their instruction from gathering resources, supporting classroom discussions, to using it as an assessment tool to inform instruction. The following theme will show evidence of another way teachers chose to use the iPad in their social studies classrooms.

Theme #2: iPad Used for Finding and Sharing Content

Creating connections between the students and the content is an important aspect of teaching DL-based social studies. Creating connections is the largest construct in Starkey’s (2010) model of teaching in the digital age. In this model, selecting resources and creating successful connections between the students and these resources allow the teacher to engage students in the practices of real-life historians. With the iPads, the teachers had the ability to access a wide range of resources and create opportunities for the students to connect with the content and each other. Technology also allowed the teachers to scaffold learning and adapt learning opportunities that addressed individual student interests and abilities. Both adaptation of learning and enabling learning opportunities for students are key teacher activities in Starkey’s component of connecting students with other learners.

A crossover is evidenced between Starkey’s (2010) model of teaching in the digital age and the principles and practice of DL between the use of primary sources and encouraging
disciplinary discourse. With the iPad, teachers could create lessons for reading and discussion that were broader in scope, yet more personalized for students in their classrooms.

Teachers in Phase 1 participated in interviews. Teacher in Phase 2 also took part in interviews, classroom observations, and provided feedback via self-reports. Canvas websites provided additional data to support the findings from Phase 2 teachers. These webpages provided artifacts and evidence of instructional practices and support materials. The teachers agreed to grant the researcher access to assignments, quizzes, projects, and discussion boards. The researcher could not participate in discussions, take/edit assessments, or open the gradebook, but could see all discussions, assignments, and assessments. The data collected showed that all six teachers in the study used the iPad to find and share content with the students within and outside of the classroom. Finding and sharing content emerged as a theme while examining how teachers used the iPad to support their social studies instruction.

Finding and sharing content outside of instructional time. One way teachers used the iPad was to find and share content outside of the classroom. Teachers had the ability to share content with students with the Canvas learning management system. Every teacher was required to maintain a webpage on Canvas for each class, including a syllabus that outlined general expectations and policies, topics of study, and work requirements of the course. A to-do list function, generated by the teachers’ posts, comprised a list of daily tasks on student iPads. iPads worked in conjunction with Canvas to support student organization by pushing all assignments, projects, or quizzes to the students’ iPad calendars. Teachers used this electronic means of communicating and sharing content with students to support them outside of the classroom. Teachers also used the iPad during their time outside of the classroom to find and share content which supported their students learning.
The teachers discussed how they used the iPad during their planning time to gather the resources and content that supported their instruction. Holly described her time spent “finding a lot of resources for them (the students) and actually looking through them myself…if you say go out and search Google that is a mess…So looking through all the sources myself and picking out a lot of different rich resources” was important to her (Interview, September 30, 2016). She then shared these resources with her students with Canvas.

Ruth also explained how she used the iPad during her plan time. Technology made it simple for her to take the resources or the links she found and post them in Canvas. Once they were in Canvas, the students transferred the documents to the Notability app for reading and annotating. She described how once students find the documents they can use their iPads to “pull them into Notability and annotate them. In Notability or whatever they have, I think that as far as teaching in this manner that the technology is an amazing resource to be able to do that” (Interview, September 27, 2016). The iPad allowed students to organize, annotate, and store their documents electronically. This was a more efficient way to work with text than paper and pencil.

Rick, on the other hand, was trying to use technology more, but was self-critical of his pace in using Canvas and the iPad. He described how he was “slowly, but surely changing. I’m using discussions more, I’m using modules more, I’m using Canvas a lot more than I ever have…but it’s a hard transition for me” (Interview, September 27, 2016). He used the technology to support and deliver content, but he felt he should have been integrating it more thoroughly into his instruction.

Maggie also appreciated the iPad and the Internet as a source of content for herself. She described how she “read a lot of things on the Internet, like current publications and I try to stay
abreast with the news…when teaching social studies every place you go you’re like ‘how can I use that in the classroom’…you can find something that cool and might grab the kids” (Interview, September 21, 2016). Sharing this content enhanced Maggie’s instruction.

Julie did not comment directly about delivering content to students outside of the classroom, but her self-report entries show a variety of links to videos, PDF files, and assignments students could access at any time outside of class. Seventeen of Julie’s entries on her self-report included resources to support students’ learning. This was evidence that Julie used the iPad for gathering and sharing instructional materials with technology.

The teachers use of the iPads allowed them to provide resources to students during instructional time as well as beyond the classroom. The technology provided a convenient way for the teachers to share instructional resources and the students the ability to access these at any time during or outside the classroom.

Sharing content during instructional time. All three Phase 2 teachers used the iPad to project content, support materials, and resources during the classroom observations. For example, Jeff, Julie, and Holly all started their lessons by sharing the objective of the day on the whiteboard or screen in their classrooms. Their lessons continued projection of various forms of content for students. Jeff, for instance, used the iPad to project a PowerPoint presentation on WWI and play a review game with students on Quizlet, while Holly used the iPad to project bellringer questions and Supreme Court decisions the students analyzed. Julie used it to show clips from WWII propaganda videos and shared samples of student projects.

Julie also used described the variety of ways she used the iPad to deliver information or content to students:
I use it to show student examples. I use it to be able to access news as it’s happening. I use Airplay (Apple TV) a lot in that way. I can show students’ examples very easily, like if students are doing something and I’m trying to explain another option I can pull it up real quick. It allows for spontaneity that didn’t happen before. (Interview, September 22, 2016)

Five of Julie’s 31 self-report entries referenced student work examples, student-friendly rubrics, or criteria for success documents. These were clear examples of Julie offering support of mentoring to her students, as well as giving them examples to practice communicating their learning to her and other students.

Jeff used the iPad and Canvas to post assignments and links for students. He described how technology could be called a “delivery service of learning experiences” (Interview, September 20, 2016).

I think the iPad has helped tremendously by Canvas, or by a learning management system that has allowed us to deliver resources to the students to keep them organized in terms of assignments and deadlines. We provide them with video links and PDFs. They can go on web quests, so it’s the delivery of learning experiences. It still needs to be curated and guided…but with the iPads, they [the students] have unique opportunities that when you and I were growing up we didn’t have. (Interview, September 20, 2016)

His feedback reflected how he used the iPad and Canvas to support his instruction and deliver/share resources with his students. With his guidance, his students had more opportunities to interact with information than students have had in the past. This made technology a positive addition that helped support the social studies curriculum for Jeff and the other teachers.

Summary of Research Question 3

The results of data collected to address Research Question 3 yielded two main findings. The iPad was instrumental in supporting social studies instruction including providing primary source content, simplifying communication between teacher and students, and allowing for
expedited sharing of assignments and assessing student learning. The iPad also gave teachers the ability to find and share content while together with students in the classroom, but expanded this delivery of content beyond the classroom as well. The iPad proved to be a positive add-on to the teachers’ instructional tools because of its ability to provide access to resources and support teachers’ methodology and curricular goals in the social studies classroom.

Conclusion

This case study examined the use of iPad technology in the social studies classrooms of six middle school teachers. Three research questions were proposed to answer the question of how these teachers combined their knowledge and practice of technology, pedagogy, and content together with DL principles and practices. Each of the three questions produced evidence of two major themes, further divided by teacher participation and subthemes. The results uncovered teachers’ perceptions and practices regarding DL, as well as how TPACK and the iPad are used to enhance their social studies instruction.

This case study revealed that teachers were not familiar with the term DL, but more in-depth analysis revealed that the teachers were engaged in the principles and practices of DL, and were quite adept at using the iPad to achieve their instructional goals. These results and discussion of the findings, as well as possible directions for further research will be presented in Chapter 5.
CHAPTER 5
DISCUSSION

Introduction

The purpose of this case study was to provide an in-depth view into what middle school teachers knew about DL, whether they applied these principles to their instruction, and how a 1:1 iPad initiative supported their social studies instruction. This chapter contains a discussion and conclusions drawn from the case study as well as the limitations of this study and implications for future research. First, the findings from the three research questions will be discussed, which will include a summary of the major themes uncovered and how they support the theoretical framework and past research. Then, implications will follow for teachers and school districts planning to implement DL principles and practices in their social studies instruction while using technology like the iPad. Finally, recommendations for practice and research will be shared to enhance classroom implementation of the iPad and its ability to support and enhance DL-based instruction in the middle school social studies classroom.

Discussion of Research Questions

Research Question 1

Disciplinary literacy “involves the use of reading, …speaking…and writing required to learn and form complex content knowledge appropriate to a particular discipline” (McConachie
Petrosky, 2010, p. 16). The teachers in this study were unaware of the terminology or formal definition of DL, however, they could connect their newly acquired understanding of DL principles and practices to the CCSS and the C3 framework as it related to their instruction. Several of the teachers pointed out the commonalities between DL-based instruction and their own teaching. Holly’s reaction to the article was common across the teachers:

I hadn’t heard the term [DL] itself…while reading it, there were a lot of things that a lot of us are already doing, but I just hadn’t heard that term before…I thought it was going to be more about the idea of teaching about literacy, more like reading skills than the content of history as opposed to student thinking as historians. (Interview, September 30, 2016)

Although Holly and the other teachers recognized the practices of the article as disciplinary in nature, even without this knowledge they engaged in the practices of DL in their classrooms.

Additionally, in support of past research by Manderino and Wickens (2014), the teachers recognized how the skills of inquiry, learning key practices of a discipline, and communicating findings via multiple modalities are all components of DL, CCSS and the C3 framework. Despite the lack of a formalized curriculum, all the teachers described how the current curriculum would be changing to incorporate inquiry-based learning and higher-level reading and writing skills. The teachers identified the importance of students’ ability to read primary and secondary sources, the use of evidence to support thinking, and communication of these findings in a variety of modalities as the changes they saw taking place in the new social studies standards.

Classroom observations during the study provided evidence of inquiry-based learning and practices of researching, reading, and communicating findings of their enquiries. Despite the lack of a formalized curriculum based on the C3 standards, the teachers all vocalized their
understanding that there was a shift in social studies from traditional textbooks, lectures, and multiple-choice tests. They were familiar with the shift to more advanced reading and analytic skills put forth by the C3 standards and supported by Wineburg (1991) and Lee and Spratley (2010) which showed elementary level reading skills are not adequate to support the literacy skills necessary in middle school. Jeff, Julie, and Holly, who participated in Phase 2 of the study, presented lessons which engaged students in inquiry, research, and opportunities to express theories backed by findings of the research. They were helping students develop critical historical analysis skills which is at the heart of DL-based instruction skills (Dutt-Doner, Cook-Cottone, & Allen, 2007).

Despite past research that showed content area teachers are reluctant to embrace the idea of teaching reading and writing skills in the content area classroom (Bain, 2012), this study showed evidence which refuted this premise. None of the teachers verbalized any negative views about incorporating reading and writing strategies into their instruction. This may have been related to the fact that all the teachers in this study had been or still were literature/language arts teachers, but they all recognized that the new standards of the C3 framework would challenge students’ literacy skills and could not be separated out as responsibility of the English department (Moje, 2008; O’Brien, Stewart, & Moje, 1995). In fact, Maggie stated, “social studies is the perfect place to teach reading and writing because the material is already there…[teachers] are not only teaching reading, but teaching understanding” (Interview, September 16, 2016). They all made use of a variety of forms of texts and read for a variety of purposes to increase their acquisition of content knowledge and help them improve their skills as apprenticed historians (Alvermann, 2002; McKenna & Rovinson, 1990. They could take their content area knowledge and marry that together in a way to become “teachers with deep
understanding of their respective content areas” to become “partners in the creation of
Not one of the teachers balked at the idea of reading and writing as too time-consuming or taking
away from content acquisition as some researchers have suggested (Moje, 2008; O’Brien,
Stewart, & Moje, 1995).

All six teachers in this case study provided evidence that teachers in a middle school
content area like social studies can embrace the principles and practices of DL-based instruction.
Even without formal professional development, they were able to see the link between the C3
framework and DL as an important step to developing literacy and social science skills in their
students.

Research Question 2

Based on the data gathered from Research Question 1, it was evident that the teachers in
this study recognized and incorporated DL principles and practices into their instruction. The
purpose of Research Question 2 was to explore more deeply how technology played a role in the
implementation of these principles and practices in the social studies classroom. The three
teachers who took part in Phase 2 of this study provided feedback that reflected which aspect of
TPACK (Mishra & Kohler, 2016) was most important to them when planning lessons. Most
responses to this inquiry was that content knowledge was most important when planning a
lesson, placed ahead of pedagogy or technology. These results are consistent with Hughes
(2015) research that showed veteran teachers had an advantage over younger more inexperienced
colleagues when it came to infusing technology into lessons. The three teachers participating in
this phase of the case study had no fewer than 7 years teaching experience. At this point in their
careers they most likely had less concerns about how to teach a lesson than what the focus of the lesson would be. And, because they were in the third year of iPad implementation considered the technology as support tool to reach the objective of the lesson rather than the purpose of the lesson itself. With the level of experience in teaching social studies, these teachers also had established a base of knowledge for themselves, thereby making it easier to be successful with the combination of content, technology, and pedagogy to help support students thinking and communicating as historians (Sung & Yang, 2013).

For students to develop strong inquiry-based skills, which are at the heart of DL, instructional practices and curriculum need to be in place to support multi-literacy-based lessons (Mousa, Shinas, & Park, 2017). The teachers in this study did not have a current curriculum based on inquiry skills or DL practices, yet they recognized the importance of these skills and knew that the upcoming curriculum would be based on these standards. Carney and Indrisano (2013) suggested that it is the teachers’ abilities to combine content knowledge, pedagogy, and way of thinking which allows them to incorporate the principles and practices of DL in their content area classrooms. Not only did the teachers in this study show that they were successful in do so, they also were able to enhance and shape instruction in their classrooms with the iPad for their own purposes, like results of Gallagher et al., (2015). These teachers successfully balanced technological, pedagogical, and content knowledge together to meet the needs of the pending curriculum and their students.

This case study revealed ways in which social studies teachers can use iPad technology, pedagogy, and content knowledge to meet the standards of the CCSS and the C3 framework. The evidence provides some answers to the questions posed by Voogt, Fisser, Roblin, Tondeaur, & Van Braak (2013) who saw the interconnection among technology, pedagogy, and content, but
pointed out the relationship of these constructs remained unexplored. This study also answered Gomez’s (2015) call for additional research in the areas of TPACK (Mishra & Kohler, 2016) in middle school social studies. Teachers identified content as the most important influence in the TPACK (Mishra & Kohler, 2016) model when planning lessons, but further exploration into their decision-making and choices would strengthen the understanding of why teachers choose content knowledge over technological or pedagogical knowledge the majority of the time. It also uncovered the need for teachers themselves to be familiar with the TPACK (Mishra & Kohler, 2016) model to explain their instructional choices. Many questions remain about the model and its real-world application in the classroom and how educators can maximize its use in their instruction.

Although the teachers in this case study consistently identified content knowledge as the most important factor when planning lessons, they all had individualized ways to meet the curriculum standards and lesson objectives. The data collected supported McGlinn-Manfra and Hammond’s (2006) study which showed that teachers with identical technology and curricular objectives still maintained the pedagogical style which was most comfortable for them. Classroom observations, teacher self-reports, and observation/documentation of teacher Canvas pages showed independent approaches to common curricular objectives. Even Julie and Jeff, who taught in the same school and the same grade level, had differing approaches to implementing technology use in their lessons.

Because the TPACK (Mishra & Kohler, 2016) model is fairly new, and the majority of the research using this model has focused on pre-service teachers, this case study added to the research on how this model could be applied to the evaluation of teachers’ use of technology. It specifically examined how classroom teachers were able to successfully combine
technological, pedagogical, and content knowledge together into their instruction. Because most of the research has been done with pre-career educators, the weakness of this approach includes teachers-in-training that may not have as solid pedagogical or content area knowledge base from which to draw when compared to veteran teachers. However, this case study included 6 educators with between 7 and 25 years of teaching experience. The least developed of the three constructs of the TPACK (Mishra & Kohler, 2016) model was the teachers’ technological knowledge, and they could hardly be considered novices when it came to using technology in their classrooms. There is much to be learned about how teachers plan, teach, and reflect on using the constructs of this model in the content area classroom.

**Research Question 3**

The teachers in this study were shown to be adept at using the iPad and its affordances to support their social studies instruction. Karchmer-Klein, Mousa, Shinas and Park (2017) found that the iPad as an instructional tool supported interactivity, multimodality, and collaboration. These are all skills necessary for a 21st century social studies learning environment. The teachers in this study reported these activities and demonstrated them during classroom observations. Teachers the iPad to provide multimodal primary sources for their students, encouraged inquiry-based learning which required collaboration with other students inside and outside of the classroom. These teaching methods also supported Gallagher’s et al., (2015) research on the use of the iPad as a way for teachers to provide a variety of ways to enhance and shape instruction in the classroom, contingent on the curriculum and assessment which focused on more than memorization of facts. One teacher, Julie, proclaimed that “for social studies I think the technology is life-changing” (Interview, September 22, 2016). That was a powerful way to
summarize how the iPad, particularly in a 1:1 environment, enabled these teachers to create a more student-centered, inquiry-based classroom. The data in this study provided additional support to these findings. Maggie commented that the iPad is the perfect tool for primary documents and primary sources…it really opens up a lot of different ways to look at something rather than giving the kids one article…I think it’s the best thing to be able to have as a resource, especially in social studies. (Interview, September 21, 2016)

Although the transition to DL and inquiry-based learning was more challenging for some of the teachers than others, all recognized the impending changes the C3 framework would bring to curriculum and were working towards incorporating these skills into their instruction. They also recognized how important the iPad and 1:1 access for fully implementing these practices into their lessons.

The teachers in this study also recognized the motivating factor of the iPad in their classroom. Sessions, Kang, and Womack (2016) found the iPad motivated students to write and made the process more interactive and engaging. Moon, Wold, and Francom (2017) found improved reading engagement and comprehension when students used the iPad. Teachers in this study readily acknowledged the use of the iPad to motivate and engage students in the learning activities.

Not only was student engagement desired and observed with the teachers in this study, the teachers also demonstrated how to support the CCSS and C3 framework in their classrooms. This extends Henderson-Rosser and Sauers (2017) study of science teachers using a 1:1 iPad initiative to enhance multiple areas of inquiry-based instruction. This study showed that iPads also enhanced inquiry-based instruction in the social studies content area.
Additionally, teachers used the iPad to curate and disseminate a variety of digital resources for their students. This supports the belief content area teachers need to incorporate “new media and new literacy practices” in the classroom (Moje, 2008, p. 97). These practices included “non-traditional texts, text-based activities, and textual forms…that today’s students find functional and challenging” (Guzzetti, 2009, p. 202). All the teachers in this study recognized the need for students to gain an understanding of how to find, evaluate, and analyze a variety of digital resources. None of these teachers relied any longer on using a traditional textbook or lecture-based instructional practices. They saw their role changing with the implementation of technology in their lessons. Julie stated that instead of textbook reading and lecture her role had changed to that of “the facilitator, I don’t have to teach specific things anymore, I facilitate a structure. I provide a structure and provide guidance. So my role is very different” (Interview, September 22, 2016). All the teachers in this case study saw the changes that technology had on their subjects, and even the most reluctant of them to embrace these changes were like-minded in the positive impact it had on their teaching and their students’ abilities to engage in 21st century learning skills.

Limitations of Study

There were several limitations recognized in this study that should be taken into consideration. The first limitation was the relationship of the researcher to the participants and the narrow focus of the study. The participants were all colleagues of the researcher which may have influenced their responses to interview questions and their instructional practices during classroom observation. The narrow focus of this study only included three teachers in an affluent suburb outside of Chicago and only the use of iPad technology. This may present
difficulties when attempting to apply the findings to a broader teaching population. This study also took place in the third year of the 1:1 iPad initiative where the teachers were comfortable using the technology. Any other year of implementation might produce different results (Hutchinson & Woodward, 2014).

Another limitation to the study was the collection of self-report data that did not include teacher interviews or reflections on entries to these logs. Without follow-up discussion to explore why teachers made the choices they did in terms of which component of the TPACK (Mishra & Kohler, 2016) model was more important when planning, it was difficult to gain insight into teacher decision-making. This make it difficult to gain insight into teacher choices and provide more clarity into the results gathered with this data collection tool.

A third limitation to the study was the 12-year-old curriculum the teachers were teaching. The outdated and pre-technology-based materials and methods made it difficult for teachers to teach consistently between the two middle schools. The district was in the middle of a new curriculum cycle including social studies, but until this process was completed, it left teachers to develop their own lessons, gather their own materials, and find ways to update instruction to include iPad technology and to reflect the new standards developed by the state of Illinois based on CCSS and the C3 framework. It also meant teachers did not have exposure to DL principles and practices which encompass the skills contained in these standards.

Regardless of the limitations of this study, it did present some valuable results that can be used as a basis for teachers, school districts, and future research.
Implications and Recommendations for School Districts

There are several important implications that school districts can glean from the results of this study. The first is that DL instructional practices take time and forethought before full implementation. Teachers need to be trained in the principles and practices of DL. In order to make these shifts in practice so that all students in a district have sustained opportunities to learn, apply, and engage with others in content-rich learning experiences will require a new vision of instructional quality and of the necessary changes in teaching, learnings, professional learning, and organizational routines. (McConachie & Petrosky, 2010, p. 11)

Professional development directly related to DL principles and practices would provide The philosophical and practical education teachers would need to implement DL in their classrooms. All core subject area teachers would benefit from learning about what DL is and how teachers have used and could use these practices in their classrooms.

The second point is that technology and its implementation in the classroom takes careful planning and continuous support. Initiatives, like the iPad initiative in District 34, took millions of dollars, hundreds of hours of professional development planning and implementation, and a staff of technology specialists and teachers willing to put aside attitudes, beliefs, and fears to pursue the success of technology-infused instruction. School districts that are considering pursuing the path of a 1:1 technology program should plan on spending equal amounts of time and money to carefully research which technology is best suited for their needs, have a solid infrastructure to support the technology in place, and be willing to hire and train support personnel who understand schools and the needs of teachers and students. These programs entail much more than the purchase of the latest device, it requires continuous technological and professional development support.
Districts should also be willing to invest in the use of research models such as TPACK (Mishra & Kohler, 2016) or the 4Es (Moje, 2015) to educate and support the work of technology support professionals and teachers. If districts in Illinois are to be supportive of the new state standards, teachers need to learn the basic principles of DL and be willing to move forward with the shift to a student-centered, inquiry-based instructional model. Curriculum and content need to be in place to provide the best instructional efforts of teachers. Discipline-specific professional development that supports of teacher learning should be part of the process in helping teachers understand and implement DL-based instruction.

To help school districts and teachers understand what it takes to implement DL in the 21st century, the following model illustrates how curriculum, DL principles and practices along with technology are essential elements which support DL in the 21st century.

Figure 6: Model of the three essential elements for disciplinary literacy in the 21st century
Disciplinary literacy in the 21st century rests on three interdependent elements that are necessary to provide teachers and students the foundation on which all teaching and learning in the content areas depend. This model’s base is a synthesis of the three areas of teaching and technology explored in this study. The keys to teaching and learning with DL in the 21st century are comprised of curriculum backed by DL principles and practices (McConachie & Petrosky, 2010; Moje, 2012) and Starkey’s (2010) model of teaching in the digital age, understanding how technology, pedagogy, and content intersect (TPACK) (Mishra & Kohler, 2012), and technology initiatives implemented by a school district.

The first essential element that supports implementation of DL in the content area classroom is a solid inquiry-based curriculum. The curriculum should be clearly tied to CCSS and based on the C3 framework for social studies. Other content areas should also utilize the CCSS or any current standards set by the profession’s national organization or state mandated standards. School districts need to provide teachers time and a voice to assist in developing an up-to-date curriculum that supports inquiry-based learning, connects to CCSS (or C3 for social studies) standards, and reflects 21st century skills. It is essential that school districts support opportunities for teachers and students to become familiar with DL-based practices by bringing in educators who can provide philosophical and practical examples of what DL looks like in the classroom. The lessons teachers develop should reflect a balance of teacher-led and student-centered lessons that strengthen the teacher’s role as mentor and students as apprentices in the study of history as historians would provide a solid curricular base from which teachers could draw when planning their instruction. It would be advantageous for teachers to discuss how the TPACK (Mishra & Kohler, 2012) constructs intersect in lessons so they can see the importance
of combining strong technological, pedagogical, and content knowledge skills into each lesson and detect where the curriculum or lessons may be lacking in these areas.

Instruction grounded in beliefs and actions centered around DL principles and practices is the second essential element in the model. Teachers need to be educated on the tenets of DL and shown the connection between DL and inquiry-based learning. They need to let go of old methods of focusing on covering content in favor of individualized goal setting and assessment which incorporate the CCSS and other content area standards. They need to be encouraged to take risks in the classroom and allow students into the learning process, while also being mentored by teachers or experts that understand what DL looks like in the classroom. The school district needs to support DL initiatives and finance professional development opportunities for teachers and follow-up after these trainings. Time should be set aside for planning and discussion for content area teachers whether transitioning to new instructional methods or sharing and shoring up their practices (Hughes, Kerr, & Ooms, 2005). Everyone involved in this process of change must invest in the philosophy and practices for DL to be successful in the content area classroom. Teachers need to be patient with themselves and understand that this change may not produce immediate and/or visible results in student learning. Students will also need time to adjust to changing instructional styles and learning expectations. But with careful planning and support, DL will make a positive impact on arming students with the skills necessary for their futures.

The last essential element to implementation of DL in the 21st century is technology. Whatever the technology choice, school districts should take the district in this study as a successful example of implementation. The adoption should have a well-prepared plan that trains all teachers and staff as well as the students. Content area teachers should not bear the
burden of teaching students the technology, this should be provided by instructional technologists or support staff outside of core instructional time. Districts also need to invest in staff to support technology during the school day and be available on-call for teachers and students to trouble shoot classroom problems that arise. Continuing financial support of personnel and hardware is necessary beyond the initial implementation phase to ensure teachers have the hardware, software, and technological support in their classrooms. Specialists and technology support staff that understand educational uses and practices of technology in the classroom are crucial to making teachers and students comfortable and confident about using technology for teaching and learning. Exploration and implementation of a learning management system and educationally approved apps and links, with a strong security filters in place, ensure appropriate use and online safety. This along with a long-term plan and consistent effort to implement technology initiatives, whether 1:1 or otherwise, provide the technological tools content area teachers need to successfully support DL in their classrooms.

In summation, for teachers to provide instruction for the 21st century, there needs to be a DL-based curriculum supported by DL principles and practices and combined with current technology in order to meet the demands of present-day social studies standards.

Implications and Recommendations for Teachers

Teachers can take away several learning points from this study. One is that technology can make teaching social studies with DL and the 4Es (Moje, 2015) a well-planned process that addresses the C3 framework and the Illinois state standards for social studies. Secondly, content can still be the focus of social studies instruction, but technology and pedagogy play an important part in the development of successful and impactful lessons. It may be helpful to
examine teaching practices to map out where instruction lies in terms of types of instruction and how these touch on the 4Es. And lastly, technology can be a burden at times, but if teachers are to progress along the learning curve, they can find technology and the Internet an indispensable tool to meet the diverse learning needs of their students and make history an exciting and motivating part of every middle schoolers’ day.

It should be noted that the teachers in this study were taking their own independent steps to move forward with new DL-based practices regardless of the limited support of the district. This is an example of how teachers can take the lead themselves in their classrooms despite limitations at the administrative level of a school district. These teachers took the initiative to learn about the new C3 standards and incorporate inquiry-based practices before they were officially in place for their district. They used technology despite any obstacles and were optimistic about the changes, even though some voiced reservations about how long it would take teachers and students to be fully invested and successful with 21st century learning skills.

All the changes taking place in education can be overwhelming, so teachers need to be patient with themselves and their skills in teaching with disciplinary practices in mind as well as combining this with the most current technology. Once these skills are firmly in place, planning skill-based lessons supported by technology can become seamlessly intertwined as the teachers in this study have shown.

Recommendations for Future Research

Current research shows that with adequate technological infrastructure, professional development support, and ongoing commitments of time and technology-based curriculum, teacher can be successful in using iPad technology to support their instruction (Young, 2016).
This case study reinforced the findings that teachers can incorporate iPads into their social studies instruction to support DL principles and practices even without a curriculum that is based on the CCSS and C3 framework.

There also needs to be continued research into DL-based instruction and how this contributes to the building of student skills for the 21st century. Through the lens of the DL heuristic presented by Moje (2012), there is still much to be learned about how teachers plan, implement, and reflect on lessons using this model and its attributes. Teachers could be taught the constructs of the 4Es, and researchers could examine the processes and products that result from using this model as a basis for instructional practice in the social studies classroom.

Along with focusing on the DL heuristic to inform teachers, there needs to be a continuing focus on how technology influences and enhances social studies instruction. The iPad is just one of the tools that teachers may use to improve instruction and access to instructional resources. Data which would inform institutions, like universities and school districts, as to how pre-service and veterans teachers process the learning and application of technology in their content area instruction would contribute to the body of knowledge related to technology. More importantly, it would address the knowledge gap that exists between veteran teacher use of technology, pedagogy, and content knowledge.

And last, but not least, there is certainly much work to be done in how the impact of teaching social studies with DL-based technology-heavy curriculum impacts student achievement- positively or negatively. There is inconclusive evidence to this point (Moje, 2009), and there are many facets to take into consideration when examining the use of technology. There can be a broad look at programs and implementation at the district level. There is also much to learn about teachers’ attitudes, preparation, and use of technology. And lastly, there is a
need to examine student outcomes of all the technological changes that have taken place in and outside of schools over the past two decades.

Conclusion

Education has always been in a state of constant flux. Teachers are at the receiving end of the challenge with the need to continuously adapt to every evolving policy, pedagogical, curricular, and technological innovations. The teachers in this case study showed an exceptional ability to embrace the anticipated changes in their district’s social studies curriculum while concurrently incorporating new methodology and an iPad initiative. The one constant in all the tangle was the teachers’ choice to place content knowledge above all other aspects of instruction. It appears that no matter what changes have occurred in social studies education to date, there remains the need for research which addresses the role of technology and its ability to improve the implementation of DL and inquiry-based teaching in the content areas. The timeliness and urgency to focus on these constructs is vital to discover best practices for teacher preparation programs and veteran teachers alike.
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APPENDIX A

DISTRICT X’S IPAD ROLLOUT PLAN
Rollout Plan for Mobile Learning

In 2013, the Board of Education approved the Mobile Technology Learning Initiative which calls for a three year phased rollout of an iPad for every student grades 6 through 12 as well as the network infrastructure, digital resources, and professional development required for successful integration of these devices into the learning environment. The plan also provides for demonstration classrooms and increased instructional technology support at the elementary level. As we move forward with the Mobile Learning Initiative, some people have been asking who will receive iPads first. Here is the breakdown:

- For the 2014-15 school year, all seventh, eighth, ninth, and tenth grade students will receive iPads as well as juniors and seniors in selected classes.
- For the 2013-14 school year, all eighth graders at MSN and MSS received iPads.
- For the 2013-14 school year, high school iPad distribution was expanded by specifically selected courses (beyond the current Environmental Science class pilot). This allowed the teachers most ready to move to digitized curriculum to lead the way.

Some parents (and students!) might be wondering how the specific courses were selected. Teachers were invited to develop and submit proposals, which were then reviewed by a committee of teachers, technology support personnel, and administrators. Each committee member rated the proposals using a published rubric. The scores were reviewed by a selection sub-committee and a final recommendation was developed.

Selected Classes include

- Biology CP
- Geometry CP
- Reading Strategies I & II
- Global Issues
- Consumer Education
- Environmental Science
APPENDIX B

DISTRICT X’s iPAD UPDATE REPORT TO BOARD AUGUST 2013
BACKGROUND:
This report provides the Board of Education with an update on the iPad initiative at 8th grade and at the High School. We know that successful change is achieved when a vision is established, skill sets identified, resources allocated, and support is provided.

Vision:
In order to achieve the district’s mission, we need to create learning experiences for students and teachers that develop one’s ability to be a continuous learner. This implies that participants must be able to find and evaluate information from a variety of sources and formats and determine what will work best in the classroom. In addition, students will need to develop problem solving skills in order to create answers to important questions. Finally, students must develop the ability to communicate their ideas to a variety of audiences.

Skills:
Professional development time has been focused at two levels. The first is the demonstration and modeling of integrating aspects of the iPad into the classroom. Teachers have been able to share and discuss the application of certain apps and cloud-based software with the iPad. The second focus has been time to work in teams to develop learning activities, projects, tasks, assessments that utilize the technology and are aligned to the curriculum.

BACKGROUND:
This report provides the Board of Education with an update on the iPad initiative at 8th grade and at the High School. We know that successful change is achieved when a vision is established, skill sets identified, resources allocated, and support is provided.

Professional Development Overview
Teachers in CUSD X have invested time and effort learning to integrate iPads into their classrooms and answering the essential question: How can technology help students reach the District mission? The following is a short summary of their professional development sessions

High School
☐ April 23 or 24 - using the essential question, teachers reviewed ways to use the iPad to create, collaborate, curate, communicate, and organize. They then integrated these tools into the lessons they planned and the ways they would communicate with students.

☐ June 11 - teachers learned ways to use Google forms to collect information and met as teams to continue their curricular integration. They discussed strategies using research knowledge gained through their work with the skillful teaching program using Edmodo.

☐ June 27 – Teachers were given homework to create an iMovie. The teacher-created iMovies were shared using Apple TV. The group then held a discussion of possible uses during the first day of student attendance. The remainder of the day was devoted to curriculum work in teams.
August 22 - Curriculum work in teams was followed by training on the Mastery Manager online component for assessments.

During the year, the High school iPad teams will continue their work in team meetings, during institute days, and with instructional technologists in just-in-time situations.

Middle School

May 14 - using the essential question, teachers reviewed ways to use the iPad to create, collaborate, curate, communicate, and organize. They then integrated these tools into the lessons they planned and the ways they would communicate with students.

May 31 - teachers and administrators met to discuss the mobile learning vision and to address immediate concerns and future considerations. Teachers worked on curricular integration and also discussed strategies, using research knowledge gained in their work in the skillful teaching program, to work on routines, on-task behavior, and collaboration through the Edmodo platform.

The eighth-grade teaching teams will continue their work during the school year in teams, during institute days, and with instructional technologists in just-in-time situations.

iAgents and Student Support

Through the feedback from the teachers and students that participated in the pilot iPad program during the 2012-2013 school year, it became clear that additional help and support for our students on basic functions of the iPad, as well apps, were needed. Once the Mobile Learning Initiative received Board of Education approval, the process of creating the iAgent program began. The foundational idea of the iAgent program is the creation of a student help desk that would allow students to help one another. With that in mind, a team met to research and to discuss other student help desk programs (both local and nationwide) to serve as the basis for our program. The team met several times to further refine the program and to create a job description.

The job description was posted and advertised at the High School. Seventy-three students applied for the six available positions. A list of the applicants was sent to the high school faculty asking for their recommendations. Through the recommendations of the high faculty and staff, twenty-five students were asked to take a “skills assessment test” to indicate their level of general and iPad technical knowledge. From the results of the skills test, ten students were selected for formal interviews.

The iAgents consist of three seniors, one junior and two sophomores who were supervised and trained. Starting at the end June, they have worked 25 hours a week preparing, imaging, and learning all aspects of the iPads and district standard programs. Their training has included topics covering iPads, inventory management, professionalism, and customer service. For the iPad Orientation, they created the self-paced training and provided fellow students support. In
In addition, they are creating instruction videos covering general iPad topics and district-provided apps. During the school year, they will be providing support to their fellow high school students during the lunch hours. Through an online help desk and forum, they will also be able to provide additional assistance to students and expand the support to the middle school.

**iPad Deployment**

All 1300 middle school and high school iPads were received, unboxed, tagged with a district asset sticker, assigned to a specific student via email address bar code (below) and inventoried. After that process, iPads were configured (50 at a time) using Apple’s Configurator software to update the IOS, push district standards, and push required configuration settings for district wireless and mobile device management. A standard suite of apps was also pushed to each device including: iMovie, iPhoto, Explain Everything, iAnnotate, Notability, Pages, Numbers, Garage Band, and Good Reader.

Once the imaging was complete, each device was renamed to match the assigned student login ID. Absolute software was pushed to the device. The final step was to case the device and bag it with a charging cable, brick and student identification card.

**iPad Orientation and Distribution**

The process of communicating the Mobile Learning Initiative officially began with the May edition of the Superintendent’s Newsletter. On July 3rd, a letter was mailed to parents of students participating in the program to inform them about the program, to let them know that their child was to receive an iPad, and that more information would follow. The last week in July a follow up email was sent which provided more information about when, where, and how to pick up the iPad. That email contained the Terms and Conditions to Participate in the CUSDX Mobile Learning Initiative. This document outlines ownership, responsibility, security, and warranty. Two other documents were made available to parents and students at Orientation. Mobile Learning Guidelines for Students and Parents, drafted provides detailed responsibilities for students, parents and school/district. Internet Safety and Your Middle School Student provides an overview of the standard middle school configuration restrictions and media content filters as well as suggestions drawn from a wide variety of professional sources to aid the parent or guardian in effectively guiding a child’s use of the mobile device.

There were a total of seven days (42 Orientation sessions) available for iPad pick-up and parents were asked to register for a time using an online program. For each day, the number of students was limited to 32 per hour. Students checked in at a main table and were led by the iAgents through a 30- to 40-minute self-paced process that resulted in the set-up of the iPad. Students set-up a district email account, apple ID and password, and learned how to use the iPad and were made aware of the on-going resources that are available (iAgent Help Desk). After the first day, there were already posts and questions which we were able to answer.

We would like to take this opportunity to thank those who helped to make the Orientation sessions run so smoothly:
Parents of middle school students were required to attend the Orientation session and were encouraged to take an active role in learning the set up process with their child. Over the course of the seven days, 1195 iPads were distributed to middle school and high school students.
APPENDIX C

INITIAL TEACHER INTERVIEW PROTOCOL
Initial Interview Questions

Teacher Experience
1. Tell me about your teaching experience.
2. Describe the traits necessary to be an effective social studies teacher.
3. What role does the implementation of the Common Core State Standards play in teaching social studies?
4. What role does technology play in the teaching social studies?
5. Describe your definition of the term “disciplinary literacy”.

Text-based Protocol
1. Describe your definition of disciplinary literacy before and after you read the article.
2. How would you describe your practices in the classroom as compared to the ideas and philosophies presented in the article?
3. How do you see the practice of disciplinary literacy as it relates to Common Core Standards?
4. How do you see the use of technology as related to the practices described in the article?

Technology Integration
1. Describe your experience with using iPad technology in your classroom.
2. What role does technology play when planning for a social studies lesson?
3. Describe a typical lesson with teacher use of an iPad.
4. Describe a typical lesson which incorporates student use of an iPad.
5. How do you assess the success of a lesson which incorporates the iPad?
APPENDIX D

INVITATION TO PARTICIPATE IN RESEARCH
Dear ____________________.

You have been asked to participate in a research study of middle school social studies teachers and how they enhance their classroom disciplinary literacy practices with the iPad. You were selected because you teach at least two sections of social studies and have had at least 3 years of experience with this technology. Please read the following terms and ask any questions you may have before agreeing to participate in this study.

The purpose of this study is to explore how middle school social studies teachers use iPad technology to enhance disciplinary literacy practices in their classroom. This study will be used as fulfillment of the requirements of a doctoral dissertation completed by Lisa Janezic and supported by the Literacy Education Department at Northern Illinois University.

If you agree you will be asked to participate in some/all of the following activities:

- One-on-one initial interview (approximately 45-60 minutes)
- Four classroom observations (2 per grading quarter)
- Four post-observation interviews (approximately 30-40 minutes)
- Completion of weekly log of technology activities
- Agree to add researcher as student to Canvas account

There are no foreseeable risks associated with this research. You will receive the following compensation:

- $10 gift card to local retail establishment for participation in initial interviews
- $100 gift card to local retail establishment for participation in full study

You may withdraw from this study at any time without penalty. It is understood that your consent to participate in this project does not constitute a waiver of any legal rights and that you have received a copy of this form.
If you have any questions before, during, or after this study please contact Lisa Janezic at ljanezic@sbcglobal.net or by phone at (815) 814-8897 or Dr. XXXXXXX at Northern Illinois University.
APPENDIX E

INFORMED CONSENT TO PARTICIPATE IN RESEARCH
INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY

I agree to participate in the research project titled Middle School Teachers Use of iPads to Support Disciplinary Literacy Practice in the Social Studies Classroom.

- I have been informed that the purpose of the study is to explore the use of iPad technology in the middle school social studies classroom and how this supports disciplinary literacy practices.
- I understand that my participation is completely voluntary, and that I can choose to stop participation at any time without penalty.
- I understand that digital images of the instructional materials or capture of digital images (screen shots) used for instruction will be gathered.
- I agree to be audio-recorded during the initial and post-observation interviews.
- I understand that information will be kept in electronic form and password protected with only the researcher having access.
- I understand that the consent form will be kept separate from the data, and the data will be stored electronically in a password protected location.
- I will be given an opportunity to review the transcripts from the audio recordings and offer revisions prior to data analysis.

Participant’s Name (print): ________________________________

I have read the above information and agree to participate in the study.

___________________________________________________________
Signature Date

I agree to allow for digital capture of screen images or digital copies of instructional materials used during this study.

___________________________________________________________
Signature Date

I agree to be audio-recorded during initial and post-observation interviews.

___________________________________________________________
Signature Date

I agree to allow the researcher full access to my Canvas account during the course of the study.

___________________________________________________________
Signature Date
APPENDIX F

CLASSROOM OBSERVATION PROTOCOL
Instructional Goal

Instructional Activity

iPad Technology Component/Use

Evidence of 4Es: engagement, eliciting/engineering, examining, evaluating

Evidence of Disciplinary Literacy Principles: Thinking and Learning go Hand in Hand, Teaching as Apprenticeship, Teachers as Mentors, Classroom Culture Socializes Intelligence, Instruction/Assessment drive each other
APPENDIX G

EXAMPLE OF COMPLETED
CLASSROOM OBSERVATION PROTOCOL
Observation Protocol  Date  3/20  Time  9th  Teacher

Instructional Goal/ Learning Objective  - explain events of the Cold War

Instructional/Learning Activity  - on Canvas, examine timeline, 7 countries, pick two events from country, put on timeline, pic + Summary.

iPad Technology Component/Use  - Canvas (brain games) - summer class  - Timeline of Early Cold War  - Websites to find images, photo of maps of Korea

Evidence of 4Es:
Engagement  - brain games, visual of maps

Eliciting/engineering  - timeline for Cold War, use US as example, moon landing

Examining  - map out Cold War events on Notability Timeline, make sure authentic photo

Evaluating  - whether sources are important, sources are accurate ("containment" - after Cold War)
### Evidence of Disciplinary Literacy Principles:

**Learning as apprenticeship**  
- Talking about show on History Channel  
- Korea - linked to personal experience

**Teachers as mentors**  
- Showing summer class - likes board games

**Classroom Culture socializes Intelligence**  
- "Quote" - students choose two pictures; place on timeline, students choose own pcs/events, summarize

**Instruction/Assessment drive each other**  
- Submit capitalism vs communism  
- Practice new Cold War Quizlet

**Knowledge & Thinking Go Hand In Hand**  
- Choice of students  
- Notability application  
- Knowledge  
- Thinking about sources (viability)  
- Using visuals  
- Reliability
APPENDIX H

POST OBSERVATION PROTOCOL
1. Describe how you planned this lesson. What was the process in terms of content, methodology, and technology?

2. Describe how this lesson addressed the principles of disciplinary literacy.
   
   a. Learning as apprenticeship
   b. Teacher as mentor
   c. Learning drives assessment/assessment drives learning
   d. Classroom culture invites intelligence

3. Can you describe how you addressed the following constructs of disciplinary literacy:
   
   a. Helping students engage in social studies practice
   b. How you elicited/engineered the learning experience
   c. How students examined the language of social studies
   d. How students evaluated the content, language, or sources related to the lesson

4. Describe the role technology played in the implementation of this lesson.
   
   a. Would you describe this as primary, secondary, or tertiary role?

5. What is your assessment of the outcome of this lesson?

6. Would you change any aspect of this lesson? If so which one(s)?
APPENDIX I

TEACHER WEEKLY SELF-REPORT LOG
| Date | Describe the Lesson- State Objectives/Topic | Teacher Use of Technology Websites, Apps, etc… | Student Use of Technology Websites, Apps, etc… | Which was most important when planning?
Content of Lesson Technology Used Teaching Method |
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APPENDIX K

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To: ljanezic@sbcglobal.net;

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