Digital Literacy Integrated Into Academic Content Through the Collaboration of a Librarian and a Core Content Teacher

Jeri Leann Jeffcoat

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DIGITAL LITERACY INTEGRATED INTO ACADEMIC CONTENT THROUGH THE COLLABORATION OF A LIBRARIAN AND A CORE CONTENT TEACHER

by

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DEDICATION

This dissertation is dedicated to my dear husband Joe. The long hours and attention needed for this work would not have been possible without his love, support, and grace. I thank Joe for taking care of us and our cats during this journey. I must also thank God for allowing me this tremendous opportunity.
ACKNOWLEDGEMENTS

Most of all, I would like to thank Dr. Hengtao Tang for all of his help and amazing guidance. I appreciate the amount of time and attention to detail that he dedicated to my work. His ability to suggest the perfect solution to several little hitches was uncanny. Further, his gentle manner and kind words helped and encouraged me more than he could possibly know. I would also like to thank Dr. Holli Bice for her patience and help during the latter part of my journey. Thanks also go to Dr. Lucas Lima De Vasconcelos and Dr. Michael Grant who helped me immensely in my dissertation efforts. I would like to thank all of my committee members for the time and effort that was spent on my behalf. I learned so much from them all and am grateful beyond measure.
ABSTRACT

The purpose of this mixed methods action research study was to investigate the impact of collaborative teaching involving a school librarian and a social studies teacher on sixth-grade students’ unit projects, classroom engagement, and digital literacy skills. This study's innovation was twofold: academic content was infused with digital literacy skills instruction, and the librarian/researcher co-taught the unit with a regular academic content teacher. The study was designed to answer three research questions involving how instruction that integrates digital literacy and social studies content taught collaboratively by a librarian and social studies teacher influences sixth-grade social studies students’ performance on summative unit projects, what the effects are on student engagement when students receive this innovation instruction, and how this instruction influences sixth-grade social studies students’ performance on an online digital literacy assessment.

Both qualitative and quantitative data were collected during this study. Quantitative analysis revealed that students’ classroom engagement increased during the innovation unit, students scored higher on their digital literacy assessment, and students’ social studies project scores were significantly higher. Qualitative analysis revealed that students perceived bringing digital literacy into social studies content improved their awareness of and skills in digital literacy. Further, qualitative analysis indicated students perceived the presence of two teachers as beneficial to their learning because it increased their engagement, exposed them to a broader range of knowledge, and increased the pace
of the class. Data analysis also revealed that students perceived that the inclusion of the librarian increased their interest in the class and that combining digital literacy instruction and social studies made social studies more engaging. Implications for this study include the potential for other librarians to use this research as an impetus to push harder to make collaborative partnerships in their schools more of a reality.
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CHAPTER 1
INTRODUCTION

National Context

Many countries, including the United States of America, are “reforming their education systems to provide their citizens with knowledge and skills that enable them to engage actively in democratic societies and dynamic knowledge-based economies” (Sahlberg, 2006, p. 261). These skills are often referred to as “21st century competencies” or, in the United States, “21st century skills” (Voogt et al., 2013, p. 405). In 2015, President Barack Obama instituted the Every Student Succeeds Act (ESSA), which addressed the need for states to enhance technology-assisted learning and testing to provide students with these skills (Hall, 2018). Digital literacy was referenced within the context of this document (Alliance for Excellent Education, 2016) and later expounded upon by the United States Department of Education’s Office of Education Technology in an additional document that described and explained how schools, including post-secondary, should go about integrating technology and digital literacy into their teaching and learning practices. In 2017, the Office of Educational Technology updated this document and named it Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update. This update carefully describes why educational technology and digital literacy should be used in schools, what students need to learn about and with educational technology, and how teachers, administrators, teacher
preparation institutions, and policy makers can implement the educational technology plan (U. S. Department of Education [ED], 2017).

Even before the United States Department of Education (ED) published their 2017 *Educational Technology Plan Update*, many states had embraced the implementation of education technology standards through legislation that included digital literacy skills as the basis for instruction (National Conference of State Legislators [NCSL], 2017). Indeed, Florida, North Carolina, Minnesota, Maine, and Louisiana all passed legislation before 2015 promoting the use of educational technology to support digital literacy skills (Deye, 2015). These states all made provisions for not only student instruction, but also professional development for teachers so that educators would be able to implement the states’ educational technology plans (Deye, 2015). Technology coaches, online professional development courses, and pre-service teacher preparation courses in technology integration were some of the ways states intended to equip their educators to address the new state policies (Deye, 2015). Washington State, for example, passed a bill in 2015 that specifically addressed school technology and library programs and mandated that librarians collaborate with teachers to integrate digital literacy skills into regular classroom content (National Conference of State Legislators, 2017; Substitute Senate Bill, 2015). Other states eventually followed suit and created their own technology plans. As of September 2018, all states plus the District of Columbia, The Virgin Islands, and Puerto Rico had a published state technology plan (ED, 2018).

**Local Context**

The State of South Carolina currently has a new educational technology plan that is set to replace the previous plan from 2014. The new plan, *2020–24 South Carolina*
Educational Technology Plan: Empowering Education with Technology (SCDE, 2020), addresses the 2017 National Education Technology Plan (NETP), and lists the NETP’s primary goals as follows:

- Learning: Engaging and Empowering Learning Through Technology
- Teaching: Teaching with Technology
- Leadership: Creating a Culture and Conditions for Innovation and Change
- Assessment: Measuring for Learning
- Infrastructure: Enabling Access and Effective Use (SCDE, 2020, p. 2-3)

South Carolina’s new plan has only three stated goals, which incorporate the national goals. These goals emphasize 1) “Infrastructure, Connectivity, Security & Privacy,” 2) “Teaching and Learning,” and 3) “State-hosted Services, Collaboration Opportunities, and Shared Services” (SCDE, 2020, pp. 1-2). Each of these goals addresses some aspect of digital literacy skills with the Teaching and Learning goals specifically discussing the implementation of the South Carolina Digital Literacy and Computer Science Standards, which include digital literacy skills, and which were put into place in 2017 (SCDE, 2020; SCDE, 2017). Both of these documents explicitly state that teachers are required to teach digital literacy skills infused into their content area instruction. The 2020-2024 technology plan (SCDE, 2020) states that “teachers must … collaborate more and … reach outside the boundaries of their classrooms using technology and integrate that technology into lesson plans” (p. 9). Likewise, the Digital Literacy Standards state the following:

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level…. Because the Process Standards
drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding. (SCDE, 2017, p.7)

Although the standards are very clear that teachers need to combine digital literacy into their lessons, many do not because they do not have time to develop new lessons, they do not know enough about educational technology to incorporate digital literacy skills, or they do not have the tools to teach and assess these skills (Voogt et al., 2013). It must be stated, however, that many teachers and administrators simply do not know the requirements outlined by the State of South Carolina when it come to the digital literacy standards. When asked informally, at the school where this study was performed, no teachers were aware of South Carolina digital literacy standards, much less that they are supposed to be teaching them. As far as administration goes, the principal of the school said he thought that the standards were for high school.

The school district in which this study took place does not have a technology plan. The district website has a technology page, but the Technology Plan link goes to a blank page. Without a technology plan in place, or a technology coach, the librarians in the district are solely responsible for the educational technology professional development that teachers receive and the digital literacy skills lessons that students receive. Collaboration between teachers and the librarians to co-teach lessons infused with digital literacy skills would effectively remedy the problem (Latham et al., 2013; Milbury, 1997; Montiel-Overall, 2007; Montiel-Overall & Grimes, 2013; Ward, 2019).
**Statement of the Problem**

Teachers at the school where this study was performed do not integrate digital literacy instruction into their lessons to meet the South Carolina Department of Education’s Digital Literacy Standards.

**Explanation of the Problem**

Computer science and digital literacy content standards require all South Carolina public school teachers to provide their students with academic content infused with digital literacy skills. These skills are defined as the ability to effectively and efficiently locate information in an online environment, critically evaluate that information for reliability and relevance, use that information correctly and ethically, and create new information that can be safely shared (American Association of School Librarians, 2017; P21, 2019; South Carolina Department of Education [SCDE], 2020), along with the Computer Science and Digital Literacy Content Standards (SCDE, 2017). However, many teachers often lack time, technology expertise, and/or tools to teach or assess this type of learning outlined by state’s educational standards (Voogt et al., 2013). One study aimed at investigating one-to-one teaching practices reported that “teachers are obsessed by ‘covering content’ and are not sufficiently motivated to promote technology-assisted learning and develop[ing] the digital literacy of their students” (Blau et al., 2016, p.1228).

Unlike many classroom teachers, most school librarians have the expertise and tools to teach computer science and digital literacy standards (Johnston, 2015). However, they do not have a teaching situation that allows them to do so (Luetkemeyer, 2017) because they do not teach regular classes, but instead have only occasional whole group class visits for library orientations and book check-outs. Thus, librarians end up providing
instruction in which digital literacy skills are not infused into authentic projects where students can apply their learning to real-world situations. To remedy this problem, Latham et al. (2013) suggest that content teachers and librarians collaborate and co-teach lessons that address both subject area content and digital literacy and 21st century skills.

Purpose Statement

This mixed methods action research study investigated the impact of the collaborative teaching (co-teaching) of lessons that integrated digital literacy into social studies content on sixth-grade students’ social studies unit summative assessment projects, student engagement, and students’ digital literacy assessment scores during a social studies learning unit at an intermediate school in the midlands of South Carolina.

Research Questions

RQ1: How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects?

RQ2: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?

RQ3: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on sixth-grade students’ level of digital literacy?

Researcher Subjectivities & Positionality

I am a former art teacher, but now work as a librarian in a tiny, rural school district in South Carolina. I have lived in this community all my life and have worked here on and off for my entire career. I have known many of the people that work at my school forever. I am related to much of the population, I attend church with many of my students, I taught many of my students’ parents, and I even taught some of the teachers at
my school, when they were in school. My position within this study is as an indigenous insider, which is defined as “local researchers conducting research with individuals and groups within their own country or cultural groups” (Suwankhong & Liampitong, 2015, p. 1).

I received my Master of Library and Information Science degree from the University of South Carolina (USC) in 2016. USC did an excellent job preparing me for a modern librarian position, which is about 80% information technologist. At my school, I track and maintain all the 1:1 devices, I fix most of the equipment, I teach teachers how to use their technology equipment and how to use the software and apps that are available. Also, I select and buy books, promote reading and research, maintain the physical library and check in and check out books. Because of the job that I do, I believe that most people at my school see me in a service position, like a partner, instead of a person in a position of power. Students treat me like a teacher, but also a bit like an aunt or a family friend, which in many cases I am.

Navigating positionality for me, as a researcher in this environment, has been somewhat complicated because I did not want participants to feel pressured to join the study because they knew me well. Additionally, I did not want them to skew results in what they perceived was a positive way in order to please me. Also, I was heavily invested in the outcome of this study because it affected people I know and care about. In order to prevent these potential problems, I ensured eligible participants in writing and verbally that they could choose to not participate without damaging relationships, I carefully explained that any result was a positive thing because we were learning
something, and I would have outside individuals go over my interpretation of data to detect any bias I may have added.

I have a pragmatic worldview and the associated paradigm allowed me as a researcher to choose whatever research method best suited my situation to address the problem (Creswell & Creswell, 2018; Franco, 2016; Onwuegbuzie & Leech, 2005). I used a mixed methods approach to investigate how student project scores were affected by the collaboration efforts between a social studies teacher and the librarian (me) as we co-taught lessons that incorporated digital literacy and heavily emphasized creativity and problem solving while working collaboratively. Because of my background in art, I consider creativity and problem solving to be the cornerstones to all real academic success. Technology is the perfect tool for developing these skills while learning, creating, and sharing information digitally with the world. I communicated this conviction with my colleagues and students often.

Though an obvious bias to contend with, I think my values towards educational technology have had a positive effect on my work as a researcher because I am so convinced of its advantages. Broadly, I hope my action research will provide researchers, educators, and librarians with improved awareness of the benefits of teacher-librarian collaboration. Much closer to home, I hope my research will help my school, my colleagues, and my students be more aware of digital literacy standards so that our students can compete with students from all over the world when it comes to them getting better jobs and thus having a better quality of life.
Definition of Terms

- Departmental unit summative assessment project – an assessment in the form of a project that is required of all students in a grade level for a particular subject usually at the end of a unit of study.

- Core-content teacher – a teacher that teaches science, mathematics, language arts, or social studies.

- 21st century skills – skills that involve technology assisted “critical thinking, communication, collaboration, and creativity” (AASL, 2017).

- Key learning goals from *The South Carolina Computer Science and Digital Literacy Content Standards* – digital literacy, computing systems, networks and the Internet, data and analysis, algorithms and programming, and the impact of computing (SCDE, 2017).

- Collaborative teaching – a teaching practice whereby two or more teachers plan, teach, and assess learning units (Montiel-Overall, 2005). For this study, collaborative teaching is a teaching situation in which a librarian and a core-content teacher form a partnership whereby they work together to develop lessons or unit plans that infuse digital literacy skills into academic content (AASL, 2018b; ISTE, 2018).

- Integrated lessons – for this study, an integrated lesson is a learning structure where an academic core-content teacher and a librarian plan together and then teach a body of knowledge that mixes both digital literacy and academic content (AASL, 2018; Dooley, et al., 2016; Montiel-Overall & Grimes, 2013; SCDE, 2021).
• Classroom engagement – the intellectual connection that occurs when a student is deeply interested or involved with academic content identifiable by student behaviors such as questioning, continued effort on challenging projects, reviewing, reading ahead, and researching outside sources for the purpose of personal mastery as well as academic goals (Greene, 2015; Lowe et al., 2020; Sadaf & Gezer, 2020; Sesmiyanti, 2016; Wallace-Spurgin, 2020).

• Digital literacy – an individual’s ability to use technology to locate information that meets that individual’s educational or recreational needs, evaluate that information for accuracy and relevance, and then ethically use and safely share that information or any new knowledge derived from it (ALA, 2017; Johnston, 2015; ED, 2017; Wray & Mulvihill, 2018).
CHAPTER 2
LITERATURE REVIEW

The purpose of this mixed methods action research study was to investigate the impact of the collaborative teaching of lessons that integrate digital literacy into social studies content on sixth-grade students’ social studies unit summative assessment projects, student engagement, and students’ digital literacy assessment scores during a social studies learning unit at a small, rural school in the midlands of South Carolina. The literature that was reviewed to inform this study was centered around the three research questions each having to do with some aspect of digital literacy instruction.

RQ1: How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects?

RQ2: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?

RQ3: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on six-grade students’ level of digital literacy?

When analyzing the research questions in-depth, three main variables emerged to direct the literature search. These variables were: (1) collaborative teaching between content area teachers and librarians, (2) students’ academic success and classroom engagement when content teachers and librarians co-teach lessons to students, and (3) students’ digital literacy skills.
In order to locate and examine literature relevant to this study, a variety of methods were used including database searches, book chapters, journal articles and their bibliographies, and recommendations from colleagues. I used *Academic Search* (EBSCO) and *ProQuest* as indexes. Only one relevant article was found using *Google Scholar*, and for this article, I searched Thomas Cooper Library journals to make sure the publication was peer-reviewed. The main databases that I used were *Academic Search Complete, ERIC (Education Resources Information Center), Gale Literature Resource Center, ProQuest Dissertations and Theses Global, Taylor and Frances Online, Library Literature & Information Science Full Text (H. W. Wilson), Springer Link, Wiley Online Library, William and Mary Scholar Works*, and *JSTOR*. When searching databases, the searchers were limited to “peer reviewed” journals only, usually with a publication date set for between 2012 and the year at the time of the search. Some articles were located without a date limitation and were deemed seminal works concerning my research.

When searching the library catalogue and databases, I used many different search terms and combinations of search terms to locate literature. These search terms were mainly centered on each of the variables of this study. For instance, when I was focusing on teacher and librarian collaboration, I used search terms such as “librarians” & [Boolean operator “and”] “collaboration,” & “librarian” & “teacher” & “collaboration.” Likewise, when I was focusing on students’ academic success and classroom engagement when content teachers and librarians co-teach, I used search terms that included combinations of “student academic success” & “digital literacy” & “teacher librarian collaboration,” as well as “student classroom engagement” & “digital literacy” & “teacher librarian collaboration.” I also searched “student classroom engagement” alone
or with the terms “definition” and “assessment.” For works that pertained to digital literacy I searched not only using the term “digital literacy” but also other terms that fall under the realm of digital literacy or are often related to it. These terms include information literacy, 21st century skills, and the 4 Cs. Often, when I discovered works that were highly relevant to my research, there were several references in the authors’ bibliographies that I would locate using the library or the previously mentioned databases. Finally, several of my colleagues, when doing their own research concerning topics related to educational technology, would send me articles that were significant for my own study. These shared sources were then searched using a scholarly database and the limiter “peer reviewed” in order to verify the legitimacy of the resource before including it into my own literature to be reviewed.

The review of literature for this action research study is organized into three sections with each section relating to the variables. The first section discusses aspects of how collaborative teaching is defined and further explores what integrated lessons are when academic content is infused with digital literacy instruction. The second section concerns students’ classroom engagement and considers how it is defined and measured in an academic setting. The third section provides a thorough review of literature concerning digital literacy as a whole, how it has evolved, why it is relevant, how digital literacy is assessed, who teaches it, and how and why it may not be currently taught adequately to students. The final section of the literature review for this study looks at teacher–librarian collaboration as a means to providing students with digital literacy instruction combined with academic instruction. How students benefit from this practice,
as well as the benefits and challenges experienced by teachers and librarians are further explored and discussed in this last section.

**Collaborative Teaching and Integrated Lessons**

In this section of the literature review, teacher and librarian collaboration will be defined and discussed in terms of what is expected by the governing bodies that oversee librarian education and school librarian standards that are what national and state government education departments require of teachers and school librarians. Further, the concept of integrated lessons or units will be defined in the context of teacher and librarian collaboration. Also included in this portion of the literature review, research concerning collaboration and integrated lessons as well as examples of how digital literacy has been infused into content lessons by librarians while working collaboratively with teachers in all grade levels will be addressed.

**Definition of Collaborative Teaching**

In the United States, the American Library Association (American Library Association [ALA], 2017) and the American Association of School Librarians (American Association of School Librarians [AASL], 2018a) provide a set of national educational standards for kindergarten through twelfth-grade school librarians. These standards inform the criteria for school librarian education and evaluation as well as being the basis for individual states’ school library standards (Burns & Dawkins, 2021). Along with the International Society for Technology in Education (ISTE), a highly respected global organization also responsible for contributing input into teaching standards (Prottsman, 2019), these governing bodies include librarian and teacher collaboration as one of the major foundations of school librarianship (AASL, 2018a;
ISTE, 2018; Prottsman, 2019). Specifically, both the ISTE standards (2018, p. 3) and the AASL standards (2018a, p. 5) each use the exact wording stating that a librarian “builds instructional partnerships” and “partners with educators to design and implement evidence-based curricula and assessments that integrate elements of deeper learning, critical thinking, information literacy, digital citizenship, creativity, innovation and the active use of technology.” In essence, the AASL and the ISTE have described collaborative teaching as a teaching situation in which a librarian and a core content teacher form a partnership whereby they work together to develop lessons or unit plans that infuse digital literacy skills into academic content (AASL, 2018b; ISTE, 2018).

Montiel-Overall (2005) in her highly influential work concerning the theory of collaboration between teachers and librarians defined collaboration as follows:

Collaboration is a trusting, working relationship between two or more equal participants involved in shared thinking, shared planning, and shared creation of integrated instruction. Through a shared vision and shared objectives, student learning opportunities are created that integrate subject content and information literacy by co-planning, co-implementing, and co-evaluating students’ progress throughout the instructional process in order to improve student learning in all areas of the curriculum. (p. 5)

Therefore, based on this description, the AASL standards, and the ISTE standards, the definition of collaborative teaching will be operationalized as the collaboration of teachers and librarians in a partnership whereby both individuals plan and subsequently teach lessons together that incorporate or infuse digital literacy skills into the teacher’s
content, and then jointly assess their students’ work (AASLb, 2018; ISTE, 2018; Montiel-Overall, 2005).

**Definition of an Integrated Lesson**

As described earlier, teachers and librarians have been directed to collaborate while planning and teaching lessons or units. Standards describe these collaboration efforts as *integrated* lessons when they combine academic content and information/digital literacy instruction (AASLa, 2018; Montiel-Overall & Grimes, 2013; SCDE, 2021; Dooley et al., 2016). Often, an integrated lesson can be described in terms of examples, such as when a science instructor and a librarian collaborate when preparing and then together oversee students during inquiry-based units such as summative science projects when the teacher teaches the science portion of the lessons and the librarian helps students research topics using online databases, helps them find credible sources, helps them document and cite their sources, and then helps them prepare presentations that combine their research into a sharable products (McPherson & Dubé, 2016). Using this description as a guide, for the purpose of this study an integrated lesson or unit will be operationally defined as a learning structure where an academic core content teacher and a librarian plan together and then teach a body of knowledge that mixes both digital literacy and academic content (AASL, 2018; Dooley, et al., 2016; Montiel-Overall & Grimes, 2013; SCDE, 2021).

**Collaborative Teaching and Integrated Lessons**

A large body of research exists concerning how different partnerships, co-teaching, and collaboration should take place between teachers and librarians in a K-12 setting. Much of this research is based on the works of Loertscher who wrote his first
edition of *Taxonomies of the School Library Media Program* in the 1980s. The second edition of Loertscher’s book includes information literacy using technology and has since been embraced in place of the earlier edition by researchers spanning two decades (Gwyer et al., 2012; Loertscher, 2000; Mohamad, 2017; Montiel-Overall, 2005; Ward, 2019). It is this edition that was the guiding force of Montiel-Overall’s (2005) seminal work concerning teacher and librarian collaboration.

Grounded in the works of social constructivist learning theorists such as Dewey, Bruner, and Vygotsky as well as previous researchers in the fields of psychology, educational practices, and library science, Montiel-Overall (2005) sought to provide a theory of collaboration and ultimately came to described four types of working relationships between librarians and teachers that have been associated with the term collaboration. These levels are referred to in research concerning this topic as Teacher and Librarian Collaboration (TLC) models with each type of relationship being a progressively more appropriate situation for the maximum benefit of teachers, librarians, and students with the final one being the highest degree of attainment and the most desired relationship to promote student success (Kammer et al., 2021; Montiel-Overall, 2005).

According to Montiel-Overall (2005) the first level of teacher librarian relationship is one in which the librarian and the teacher coordinate efforts to reduce duplicated activities or better accommodate schedules, but this coordination does not focus on student learning. The second level of working relationships between librarians and teachers involves cooperation along with a *partnership* in which the teacher and the librarian work together on a goal that is focused on student learning, but the partners do
not have a shared planning time and the intellectual and assessment portions of the learning objectives are not shared (Montiel-Overall 2005). The third level of teacher and librarian collaboration described by Montiel-Overall (2005) is the *integrated instructional model* which is the model that seems most accurately to describe the standards goals of modern AASL (2018a), and the ISTE (2018) school library standards described earlier. In this model teachers and librarians work during a shared planning time to create lessons and activities that integrate academic content and information/digital literacy learning arising from a “shared vision” and a “shared objective” aiming to increase students’ educational outcomes (Montiel-Overall, 2005, p. 5). The fourth and final model outlined by Montiel-Overall (2005) in her foundational work involves the librarian not just working with a teacher, but with the administration and all teachers within a school to create a curriculum that integrates information/digital literacy into all academic content and all grade levels.

Often referencing Montiel-Overall’s work on a theory of collaboration, additional research concerning this topic has been performed in the time since. Kammer et al. (2021), in their qualitative meta-analysis, used Montiel-Overall’s work concerning the four models of teacher and librarian collaboration (TLC) to examine what practices or behaviors librarians engage in that make true collaboration with teachers, that is combining information literacy with academic content, possible and effective. This study also looked at how different researchers measured the outcomes of the collaboration efforts and included librarians and teachers from elementary, middle, and high school settings (Kammer et al., 2021). Through the lens of Montiel-Overall’s TLC Models, the authors used the qualitative data collected from the primary research studies along with
the *Wilder Collaboration Factors Inventory* developed by Mattessich and Johnson (2018) to analyze the qualitative data collected from each of the studies selected for their meta-analysis (Kammer et al., 2021, p.11). The *Wilder Collaboration Factors Inventory* was developed to gage collaborating practices and success within organizations (Mattessich & Johnson, 2018). This instrument uses a Likert scale with 44 questions arranged according “twenty-two factors of successful collaboration” (Kammer et al., 2021, p. 3) that are clustered into six groups which include “environment, membership characteristics, process and structure, communication, purpose, and resources” (Kammer et al., 2021, pp. 3-4). Using the factors from this instrument, but not the instrument itself, the researchers used commentary from the primary studies to collectively examine how librarians perceived their collaborative experiences and the factors that influenced these perceptions (Kammer et al., 2021).

Besides this above mentioned qualitative meta-analysis that used the TLC models and the *Wilder Collaboration Factors Inventory*, additional research studies aimed at investigating teacher and librarian collaboration have been performed using qualitative, quantitative, mixed methods and action research. For instance, King (2019), who was one of the primary researchers in the Kammer et al. (2021) meta-analysis performed an action research study to investigate and analyze how new collaborations are formed once participants decide that they wish to work together collaboratively. Likewise, Mohamad (2017) in an explanatory, sequential, mixed method study specifically focused on collaboration between librarians and teachers when integrating academic lessons with technology. Both studies used collected qualitative data using case studies while also using surveys to collect quantitative data (King, 2019; Mohamad, 2017).
When collaborative teaching involving librarians and teachers is discussed, one should assume that the librarian will be teaching some sort of information literacy and that this will be in the form of digital literacy (Gwyer et al., 2012). That being said, a small body of research has emerged within the last two decades that focuses on how to most effectively provide content instruction and digital literacy instruction for students during inquiry-based units similar to those discussed as part of the definition of integrated lessons. Early works using both qualitative and quantitative methods examining inquiry-based instruction combined with information/digital literacy instruction aimed at providing data mostly about project success, not student success, in social studies project-based lessons (Milbury, 1997), general studies and language lessons (Chu, 2009), and science lessons (Hughes, 2012). However, there is a notable lack in recent literature concerning 1) teacher and librarian collaboration on longer projects or unit lessons, 2) student engagement during the projects, and 3) students overall successful completion of the units due to their engagement because of the digital literacy instruction component (Kammer et al., 2021). This lack of literature suggests that an investigation grounded in the constructivist pedagogy theory of project-based or inquiry-based learning is necessary. This may seem especially true if one takes to heart the work of Loertscher (2000) and his statement:

Collaborative planning with teachers and students (during a constructivist project) is the most powerful link between the library media program and raising academic achievement. An effective human interface between teachers and learners and the vast store of information technology can and should make a tremendous difference as a learning experience proceeds. (p. 81)
Classroom Engagement

Student classroom engagement or how deeply students are involved in subject matter or activities is an issue that concerns teachers and education professionals all over the world. When students become engrossed in learning a particular subject or become absorbed in a project, teachers find it far easier to teach the students or lead the students in their own quest for knowledge (Taylor & Parsons, 2011). Further, students’ deep engagement in subject matter is what brings joy and purpose to many teachers. But aside from the pleasure teachers get from having their students become absorbed in their content, students’ classroom engagement has been linked to students' academic success and in fact to success beyond the K-12 environment (Fredericks et al., 2004; Greene, 2015; Sesmiyanti, 2016; Wallace-Spurgin, 2020).

In this section of the literature review for this study, classroom engagement will be defined in terms of current research. In addition, research concerning the effects of student classroom engagement will be explored in terms of the effects on overall student academic success and test scores. Finally, the means by which classroom engagement has been measured and assessed by other researchers as well as the instrument that I used to assess classroom engagement will be discussed.

Definition of Classroom Engagement

In the past, concerns over how deeply students connect to academic content have been concentrated on enhancing students’ grades, removing discipline issues, and helping students feel more a part of the learning community so that they stay in school (Taylor & Parsons, 2011; Wallace-Spurgin, 2020). Of late, the concern has moved somewhat away from grades, discipline, and retention and has started focusing more on student
engagement so that students “learn how to learn” and so that they “become lifelong learners in a knowledge-based society” (Wallace-Spurgin, 2020, p. 6). Based on earlier works by Fredericks et al. (2004) concerning student engagement Wallace-Spurgin (2020) outlined three types of engagement associated with students when they are being taught and participating in lessons: behavioral engagement, emotional engagement, and cognitive engagement. Wallace-Spurgin (2020) described these three types of engagement as follows:

1. Behavioral engagement draws on the idea of participation; it includes involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out.

2. Emotional engagement encompasses positive and negative reactions to teachers, classmates, academics, and school and is presumed to create ties to an institution and influence willingness to do the work.

3. Cognitive engagement draws on the idea of investment; it incorporates thoughtfulness and willingness to exert the effort necessary to comprehend complex ideas and master difficult skills. (p.26)

For this study, student engagement as described above by Wallace-Spurgin (2020) will be referred to as classroom engagement and will include all three components of engagement and as such will be focused on for research question two.

Accordingly, classroom engagement has been defined by researchers in various ways. Early on, Fredericks et al. (2004) ultimately defined engagement in terms of students’ “self-regulated learning” along with their “psychological investment” (p. 65).
Later on, but still referencing Fredericks et al. (2004), additional researchers added to the description of engagement to help define the phenomenon (Wallace-Spurgin, 2020). Activities such as questioning, continued effort on challenging projects, reviewing, reading ahead, and researching outside sources were found to be indicative of classroom engagement (Wallace-Spurgin, 2020). Along with this explanation of engagement, there arose a need to add the degree to which students are engaged in content to help round out the definition in the literature (Greene, 2015).

Based on this need, and after much research, Greene (2015) defined deep engagement as a time when students actively use what they have previously learned along with new information to build new knowledge, whereas “shallow engagement involves rote processing and other intentional cognitive actions that are more mechanical than thoughtful (e.g., rote rehearsal and verbatim memorization strategies)” (Greene, 2015, p.15). Further, Greene (2015) described the depth of student engagement in terms of students’ motivation and learning objectives. Deeper engagement occurs when students are self-motivated to connect with content to attain mastery for personal as well as academic achievement (Greene, 2015; Sesmiyanti, 2016) and “involves self-regulation strategies” (Lei et al., 2018, p. 519) that help them stay active and focused. In essence, deep student engagement in academic content is the degree to which a student becomes actively involved in the information that is being taught for reasons beyond just being a good student or getting a good grade (Sadaf, & Gezer, 2020; Sesmiyanti, 2016; Wallace-Spurgin, 2020) and involves students’ personally developed approaches to learning (Lei et al., 2018).
Therefore, based on these descriptions and definitions, for this study, the term classroom engagement in academic classes will be operationally defined as the intellectual connection that occurs when the student is deeply interested or involved with the content evidenced by student behaviors such as questioning, continued effort on challenging projects, reviewing, reading ahead, and researching outside sources for the purpose of personal mastery as well as academic goals (Greene, 2015; Lowe et al., 2020; Sadaf & Gezer, 2020; Sesmiyanti, 2016; Wallace-Spurgin, 2020).

**Classroom Engagement Effects on Student Performance**

Classroom engagement and its effects on student learning have long been the subject of research. Numerous studies have found that students who are more engaged in content do better academically (Perry & Steck, 2015). In 2018, Lei et al. (2018) performed a meta-analysis of 69 research studies conducted between the years of 2003 and 2015 to investigate how student engagement and student academic success have been studied, as well as the overall findings of these studies. The impetus of their research was partly to delve into why findings published in empirical studies over the years yielded sometimes inconclusive and contradictory results (Lei et al., 2018). For the purposes of this action research study, the studies that Lei et al. (2018) reported were located individually and examined further.

Consequently, two particularly informative studies came to light when analyzing Lei et al.’s (2018) meta-analysis. Each of these studies separated the types of engagement and compared how each type effected student success differently depending on different variables such as demographics, age, and nationality (Shernoff & Schmidt, 2008) and students’ positive feelings about their school environment (Pietarinen et al., 2014).
Further studies concerning student engagement included Appleton et al.'s (2006) work aimed at measuring cognitive engagement as well as psychological engagement and the varying affects these two types of engagement, separately and combined, influence academic achievement. This study used a large population of 1931 ninth-grade students and a student engagement instrument designed to pick apart the numerous variables that could influence student engagement (Appleton et al., 2006; Pietarinen et al., 2014; Lei et al., 2018). Appleton et al.'s (2006) study was particularly interesting because it was aimed at validating an instrument that was developed to measure the depth of student engagement and the factors that effected it.

**Documenting Classroom Engagement**

As discussed above, students’ engagement has been the topic of much research, especially in terms of how it effects students’ academic success. This is partly due to a concern for students’ wellbeing (Pietarinen et al., 2014), but also because improvement on student academic achievement is used to assess individual schools’ and school districts’ performance, as well as teacher performance, all of which are a concern for anyone in education today (Lei, et al., 2018; Wang et al., 2014). But despite the importance of measuring and evaluating student engagement, the process has proven to be problematic (Appleton et al., 2006). This again is due in part to the fact that student engagement has been divided into types and subtypes that can be complicated and intertwined if instruments do not aim to carefully isolate and remove or examine variables concerning the types of engagement not meant to be studied (Appleton et al., 2006), as well as the fact that instruments used to measure student engagement do not necessarily differentiate between school engagement and classroom engagement (Wang
et al., 2014). With this in mind, several studies have attempted to develop instruments and methods for documenting and measuring the separated types of student engagement (Fredricks et al., 2011) as well as isolating school engagement from individual classroom engagement (Wang et al., 2014).

**Instruments for Assessing Student Classroom Engagement**

Fredricks et al. (2011) in conjunction with the National Center for Education Evaluation performed a study to identify, describe, and evaluate 21 different instruments used to measure upper elementary through high school student engagement. This document further analyzed all the instruments to determine each type of engagement (i.e., behavioral, emotional, and cognitive) that the instrument measured along with the validity of the instruments as determined by other researchers. In addition, the study scrutinized the purposes that the instruments were created for such as monitoring students, evaluating teachers, assessing interventions, and examining empirical research. Fredricks et al. (2012) continued their research and further identified four main types of instruments that researchers use to gather data for engagement studies, which include student self-report surveys, experience sampling, interviews, and observations. One of their recommendations pertinent to this study is that researchers use multiple methods of data collection in order to accurately gage student engagement (Fredricks et al., 2012).

A lack of studies that addressed classroom engagement as opposed to the more general school engagement was an issue that Wang et al. (2014) sought to remedy with their development of the Classroom Engagement Survey (CEI). Their notion was that “engagement should be measured at the same specificity level as the intervention” (Wang et al., 2014, p. 518). Their CEI was therefore designed to address engagement in
particular classrooms and to measure all three types of engagement which, again, include behavioral, cognitive, and emotional engagement. Further, the CEI was designed to be used with students in grades four through twelve and be to be invariant across age groups, “class subject, gender, and free/reduced lunch status” (Wang et al., 2014, p. 523).

For this action research study, I used an adapted version of the CEI, which has been validated by numerous correlational studies (Cummings, 2020; Fredricks et al., 2011; Manzano-León et al., 2021; Wang et al., 2014) because of the age of my students and because it directly measures classroom engagement regardless of gender, race, and socioeconomic status. Further, because Fredricks et al. (2012) suggested that multiple measures be used to thoroughly investigate student engagement, I also used student interviews to gather data for this study.

**Digital Literacy**

Digital literacy skills have come to be some of the most important skills students, and indeed people in general, need to navigate our 21st century world where we are inundated with a barrage of information from a variety of sources almost constantly (Bejaković & Mrnjavac, 2020; Karnoe et al., 2018; Martzoukou & Elliott, 2016). Still, digital literacy has varied meanings (Latham et al., 2013). In this section of the literature review, other researchers’ as well as academic and government entities’ definitions of digital literacy will be explored, and the term *digital literacy* will be operationalized for the purpose of this research study. Additionally, this section will examine how digital literacy has been assessed within school settings. Within the final portion of this section of the literature review the importance of teaching digital literacy will be discussed in
light of the national and state educational standards that have been created to ensure that
digital literacy is taught in schools.

**Definition of Digital Literacy**

In 2002, the U.S. Department of Education and the National Education Association, along with private and national industry leaders formed a group called The Partnership for 21st Century Skills (P21) (Latham et al., 2013). This group was not only integral in promoting 21st century skills in K-12 education, but also provided a definitive definition of 21st century skills, which included under the umbrella of 21st century skills “information literacy, media literacy, and information and communication technology (ICT) literacy” (Latham et al., 2013, p. 3). According to P21 in their 2019 document defining the terms surround 21st century skills, *information literacy* has to do with a person’s ability to perform the following:

- Access information efficiently (time) and effectively (sources), evaluate information critically and competently, use information accurately and creatively for the issue or problem at hand, manage the flow of information from a wide variety of sources, [and] apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information. (P21, 2019, p. 5)

Likewise, P21 defines *media literacy* as a persons’ ability to do the following:

- Understand both how and why media messages are constructed, and for what purposes, examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors, apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media, understand and utilize the most
appropriate media creation tools, characteristics, and conventions, [and] understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments. (P21, 2019, p. 5)

Finally, according to P21, *information and communication technology* (ICT) literacy pertains to a person’s ability to perform the following activities:

- Apply technology effectively, use technology as a tool to research, organize, evaluate, and communicate information, use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate, and create information to successfully function in a knowledge economy, apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies. (P21, 2019, p. 6)

These lengthy sets of definitions have further been used and adapted by the Institute of Museum and Library Services (IMLS, n.d.) and the American Association of School Librarians (AASL, 2021) to define information literacy, media literacy, and ICT literacy in very similar ways. When using the term *digital literacy*, the AASL, referencing the American Library Association’s (their governing body) definition, defines digital literacy as follows:

- Like information literacy, digital literacy requires skills in locating and using information and in critical thinking. Beyond that, however, digital literacy involves knowing digital tools and using them in communicative, collaborative ways through social engagement. ALA’s Digital Literacy Task Force defines digital literacy as ‘the ability to use information and communication technologies
to find, evaluate, create, and communicate information, requiring both cognitive and technical skills. (ALA, 2017)

Stordy (2015) explained that the terms information literacy, media literacy, and digital literacy “overlap considerably and tend to be used by others interchangeably” (p. 263). Based on the close scrutiny of each of the above-mentioned explanations and their obvious commonality, for the purpose of this research study, I have summarized these definitions to provide a more succent description of digital literacy which is a combination of information literacy, media literacy, and ICT literacy and follows more closely to the ALA’s (2017) Digital Literacy Task Force definition. In short, the operational definition of digital literacy for this study is an individual’s ability to use technology to locate information that meets that person’s educational or recreational needs, evaluate that information for accuracy and relevance, and then ethically use and share that information or any new knowledge derived from it (ALA, 2017; Johnston, 2015; ED, 2017; Wray & Mulvihill, 2018).

**Digital Literacy Assessment**

Assessments to accurately and authentically gage students’ digital literacy skills have, in the past, been a challenge for practitioners and researchers alike (Care & Kim, 2017). According to Care & Kim (2017) authentic assessments must meet the following five criteria:

1) An authentic task presents as a set of activities that emulate professional practice

2) The physical context reflects the way the competencies will be applied in professional practice
3) The social processes (if these are relevant) will reflect those applied in the real situation

4) The product or performance mirrors a real life one, permits inferences about the underlying construct, includes multiple indicators, and is available to others for review.

5) Criteria identify what is valued, and standards indicate levels of performance expected. (p. 25)

In essence, based on the above criteria, digital literacy assessments in schools need to be tied to real world situations and projects where students can apply their knowledge and be graded based on a set of consistent performance standards (Care & Kim, 2017).

In addition to authentic assessments where students apply digital literacy skills to elaborate, real-world scenarios involving multiple activities, Kent State University developed the TRAILS (Tool for Real-Time Assessment of Information Literacy Skills) Digital Literacy Assessment which is a select-response test where students choose an appropriate answer to a test question from a set of possible items (Kent State University, 2019c). According to Kent State University, this TRAILS assessment has been “administered more than 126,000 assessments to nearly 2.5 million students” (2019b, para. 3). Morriston (2007), one of the many educators who has used TRAILS concluded that the TRAILS assessment provides researchers and librarians with a formative assessment for students’ digital literacy skills. Likewise, Miller (2016) in a review of the assessments claimed that “data from the assessment can provide evidence of the need to purposely incorporate information skills into a school’s curriculum, or serve as the impetus for conducting action research” (p. 46). Further, Spisak (2018) and Salem (2014)
both reported that the TRAILS assessment “has been previously validated and deemed reliable using Cronbach’s alpha for test reliability and the Rasch model for person and item reliability” (Spisak, 2018, p.45).

The Kent State assessment has four versions each designed for a different grade level, one of which is specifically for 6th grade students. The 6th grade TRAILS assessment is made up of two general assessments with 20 items each and five category assessments with ten items each for a total of 90 total questions. The category assessments concern 1) developing topics for research, 2) identifying potential sources for research, 3) developing, using, and revising search strategies during academic and personal research, 4) evaluate sources and information during academic and personal research, and 5) using information responsibly, ethically, and legally (Kent State Libraries, 2019). A study by Salem (2014) which was designed to investigate the validity and reliability of the TRAILS for grades 3, 6, 9, and 12 found that the test is valid and does reliably measure students’ information literacy skills. In point of fact, Salem’s study reported that “all four tests met or approached the 0.80 threshold for coefficient alpha recommended for large-scale tests in the social sciences: 3rd grade, $\alpha = 0.81$; 6th grade, $\alpha = 0.78$; 9th grade, $\alpha = 0.80$; 12th grade, $\alpha = 0.82$” (p. 128). Likewise, Spisak (2018) investigated the reliability coefficients for the TRAILS and found that Rasch model estimates of scale reliability provided additional confirmation of the TRAILS test reliability and stability for each test.

For the purposes of this study and as suggested by Care and Kim (2017), the researcher used a real-world social studies project where students were required to use digital literacy skills that met the South Carolina Computer Science and Digital Literacy
standards to create an online artifact that also met South Carolina Social Studies standards for 6th graders. This artifact, i.e., project, provided the authentic situation in which students' performance could be assessed. In addition, an adapted version of the TRAILS assessment, called the Online Digital Literacy Assessment (ODLA) was used to collect data for this study.

**Importance of Teaching Digital Literacy Skills**

The importance of digital literacy cannot be overstated. In order for almost anyone to function in society today they need to be able to do minimal online operations such as search for a website, find and fill out online forms, and find specific information such as telephone numbers and address (Martzoukou & Elliott, 2016). However, this description only touches on basic survival. In order to participate fully in our society, which includes finding employment, accessing government information and assistance, and finding education information, individuals need to be able to do a great deal more (Martzoukou & Elliott, 2016). Indeed, studies have shown that individuals who do not know how to search and find resources online fare far worse than those who do when it comes to employability (Bejaković & Mrnjavac, 2020), as well as health and wellbeing (Karnoe, 2018). Likewise, research has shown that students who do not have access to technology in their homes so that they can develop stronger digital literacy practices fall significantly short of their adult earning potential and educational attainment (Vigdor et al., 2014). Based on research, it is then clear that people in general need digital literacy skills to survive and prosper in our world.

However, international, national, and regional organizations have recognized this need has not been fully met (Voogt et al., 2013) and has further been emphasized in light
of educational challenges that occurred because of Covid-19 (Lai & Widmar, 2021). In this next section of the literature review, and as part of the overall discussion of digital literacy, national, as well as South Carolina state educational standards for teaching digital literacy will be explored.

**National and State Standards for Teaching Digital Literacy**

As mentioned earlier, the International Society for Technology in Education (ISTE) has developed a set of standards that are used throughout the world to inform technology use in and for educational institutions, which includes digital literacy instruction in all its forms (Almisad, 2020; Kimm et al., 2020). These standards informed United States Department of Education’s (ED) Office of Educational Technology, National Education Technology Plan (2017), as well as the ISTE’s National Standards for Educators (2017) (specifically for teachers, as opposed to the broader standards for education as a whole) and the ALA’s National School Library Standards (2017). Likewise, these standards were then used to develop individual states’ standards including the South Carolina Department of Education’s (SCDE) South Carolina Computer Science and Digital Literacy Standards (2017). In this section, examples from each of these sets of standards will be provided to illustrate the connectiveness and similarity that each agency aimed for when creating their standards.

**ISTE National Standards for Educators**

The ISTE’s National Standards for Educators include the following specific standards that relate to regular core content teachers teaching digital literacy:
a. Create experiences for learners to make positive, socially responsible contributions and exhibit empathetic behavior online that build relationships and community.

b. Establish a learning culture that promotes curiosity and critical examination of online resources and fosters digital literacy and media fluency.

c. Mentor students in the safe, legal, and ethical practices with digital tools and the protection of intellectual rights and property.

d. Model and promote management of personal data and digital identity and protect student data privacy. (ISTE, 2018, p. 1)

The ISTE standards listed above are for *educators*. Standards *b* and *c* correspond to *librarian* standards B.1., C.1. and C.2. below.

**National School Library Standards**

The ALA (2017) and ISTE (2018) National School Librarian Standards are the same and are quite in depth and extensive. Below are only a few examples from the standards that relate to librarians teaching digital literacy:

A. The school library facilitates opportunities to integrate collaborative and shared learning by:

1. Partnering with other educators to scaffold learning and organize learner groups to broaden and deepen understanding.

2. Leading inquiry-based learning opportunities that enhance the information, media, visual, and technical literacies of all members of the school community. (ALA, 2017, p. 5)
B. The school library promotes selection of appropriate resources and tools for information use by:

1. Demonstrating and documenting how resources and technology are used to address information needs.

2. Providing opportunities for all members of the school community to develop information and technology skills needed to promote the transfer of information-related problem-solving strategies across all disciplines. (ALA, 2017, p. 7)

C. School librarians act as a resource for using valid information and reasoned conclusions to make ethical decisions in the creation of knowledge by:

1. Showing a variety of strategies to ethically use and reproduce others' work and modeling this ethical use.

2. Requiring complete attribution to acknowledge authorship and demonstrate respect for the intellectual property of others.

3. Promoting the inclusion of elements in personal-knowledge products that allow others to credit content appropriately. (ALA, 2017, p. 11)

The ALA and ISTE librarian standards referenced above apply not only to teaching students digital literacy, but also make it clear that the librarian is a digital literacy resource for educators.

**The South Carolina Computer Science and Digital Literacy Standards**

The South Carolina Computer Science and Digital Literacy Standards cover an extensive amount of detailed information concerning technology and digital literacy instruction. According to the SCDE these standards are to be used “for all students in all
grade levels, kindergarten through grade eight” and “embedded in or taught in conjunction with academic standards in the content areas of mathematics, English language arts, science, and social studies” (2017, p. 3). For the purpose of brevity while still providing an example of the South Carolina standards, a small example of the South Carolina standards is provided below:

Standard 2: Understand risks and responsibilities of being a digital citizen.

The student will:

6.DL.2.1 Identify rules for safe internet use.

6.DL.2.2 Identify appropriate use of social media (e.g., cyberbullying prevention).

Standard 3: Understand issues associated with appropriate use of personal digital information.

The student will:

6.DL.3.1 Define and identify personal digital information.

6.DL.3.2 Identify consequences of inappropriate sharing of personal digital information (SCDE, 2017, p. 35)

The South Carolina Computer Science and Digital Literacy Standards listed above are educator standards, not librarian standards (SCDE, 2017). The ISTE (2018) standards for educators and the ALA (2017) and ISTE (2018) standards for librarians discussed earlier effectively connect educators to librarians through collaboration so that the librarian can be a resource for educators when they teach digital literacy.
Digital Literacy Instruction

The need to teach digital literacy to students to prepare them for full participation in society is critical (Bejaković & Mrnjavac, 2020; Karnoe et al., 2018; Martzoukou & Elliott, 2016). In response to this need, national and state education standards have been established requiring digital literacy be taught by content teachers and librarians in order to address this condition (AASL, 2017; ISTE, 2017; SCDE, 2017). Regardless of the instated standards, studies have shown that for the most part students are still not receiving adequate digital literacy instruction (Crary, 2019; Dooley, 2016; Falloon, 2020; Shaw, 2017). To that end, researchers have identified several factors that account for this situation. In this section of the review of literature, some of these factors for inadequate digital literacy instruction will be explored. Further, the training and preparation that is provided to both academic teachers and librarians in teacher education programs at colleges and universities will be examined in terms of teaching digital literacy.

Digital Literacy Instruction and Training for Content Teachers

One factor identified by researchers that is responsible for inadequate digital literacy instruction for students involves insufficient teacher preparation. Kimm et al. (2020), when examining preservice teachers’ perceptions of their own technology and digital literacy skills and their subsequent abilities to teach these skills, concluded that preservice teachers do not feel confident in their own abilities and are not prepared to teach the ISTE standards to students. Likewise, Falloon (2020) pointed out that new teachers are not given adequate preparation and training saying that teacher training programs often only provide preservice teachers with one technology course and then assume that this course will prepare them to teach digital literacy integrated into their
own learning units. In point of fact, several researchers have found that most preservice teacher preparation programs include only an undergraduate library introduction and a brief overview of how to use databases and document sources but that is usually the end of it (Dodson, 2020; Voogt et al., 2013).

To exacerbate this problem, after these new teachers leave their teacher preparation programs and enter their professions, quick demonstrations during professional development sessions provided by the schools where they teach may be all the support provided for them (Puccia, 2017). Consequently, Reisoğlu and Çebi (2020) for their research, created and evaluated a program that was specifically designed to teach preservice teachers’ digital literacy. Still, research and resulting programs for preservice teachers does not address the needs of older teachers or teachers who entered the profession before digital literacy became a necessary focus. Marksbury (2017) reported that teachers who were older or learned to teach prior to the year 2000 were more uncomfortable teaching with or about technology and thus, indirectly, information technology. Consequently, the lack of time to properly prepare lessons that integrate digital literacy into content because of being unfamiliar with technology was also a fear teachers had when they were asked to address digital literacy standards (Marksbury, 2017). Moreover, this lack of time speaks to most all educators as planning and implementing lessons that combine core content with deep and meaningful digital literacy instruction is a significant challenge for many teachers, even if they are fully capable and feel confident in teaching digital literacy (Blau et al., 2016; Dooley et al., 2016; Marksbury, 2017). In essence, research has found that a lack of experience, a lack
of training, and a lack of time are all possible contributing reasons for this issue (Crary, 2019; Elstad & Christophersen, 2017; King, 2019; Marksbury, 2017; Witte, 2015).

**Digital Literacy Instruction and Training for Librarians**

In contrast to regular education teachers, modern librarians are trained to teach digital literacy through graduate level degree programs (Johnston, 2015; Potnis & Allard, 2018; Wine, 2016). In addition to formal, institutional instruction, all certified school librarians, both seasoned and more recent to the profession, are trained to teach digital literacy through ongoing, focused professional development as part of the school librarian recertification process (Cooper, 2015; Luetkemeyer, 2017). Further, teaching and promoting literacy, in all its forms, has always been at the heart of the educational preparations that librarians receive from colleges and universities as part their basic training (Condic, 2016; ALA, 2017, 2019). Before the information age, librarians were trained to teach and/or help people find and use print materials and other media such as movies and images to meet their information needs and then how to ethically use that information to create and share their learning (Secker, 2017). Now, library schools prepare future librarians to teach people digital literacy as part of the total realm of information literacy (Davies-Hoffman, 2013). This is the standard for library schools with 95% of all American MLIS (Master of Library and Information Science) programs requiring at least one digital literacy course about online sources such as databases, as well as general sources to find information, assess it for validity and relevance, and then use this valid and relevant information in an ethical way, meaning citing sources and sharing new information formed based on research and information gathering (Dodson, 2020). In essence, while many core content teachers have difficulties integrating digital
literacy into their lessons, librarians are trained experts on how to do this (Blau et al., 2016; Davies-Hoffman, 2013; Dodson, 2020; Dooley et al., 2016; Marksbury, 2017). Therefore, a practical solution to the issue is for librarians to collaborate with educators to teach digital literacy (AASL, 2018b; Dodson, 2020; ISTE, 2018).

**Teacher and Librarian Collaboration on Integrated Units**

Teacher and librarian collaboration have long been suggested and nominally required by librarian training institution, government policies, and state school standards (AASL, 2018b; Dooley et al., 2016; Loertscher, 2000; Montiel-Overall, 2005; Montiel-Overall & Grimes, 2013; SCDE, 2021). However, this practice is far from common (Gwyer, 2018; Kammer, 2021; King, 2021; Montiel-Overall, 2007). In this section of the literature reviewed for this study, research concerning why teacher and librarian collaboration does not often or easily occur will be discussed. Further, the case will be made that students benefit academically when teachers and librarians work together to co-teach lesson that infuse digital literacy and academic content. Likewise, in this section, the means by which this study investigated student success will be discussed along with the leading theories that are associated with digital literacy and academic content that is combined and co-taught by teachers and librarians. Further, research on how teachers can and have benefitted from teacher librarian collaboration will be presented. Likewise, a review of the literature concerning the benefits librarians experience because of this collaboration between teachers and librarians will be discussed.
Difficulties or Challenges for Teacher and Librarian Collaboration to Occur

Some of the main reasons teacher and librarian collaboration does not occur have to do with time and a lack of shared planning (Maharaj, 2015). Librarians with fixed schedules have difficulty finding shared planning times with teachers (Gavigan et al., 2010; Mohamad, 2017). Many librarians function on what is called a fixed schedule where throughout the week teachers and their classes are scheduled to come to the library for a library lesson, to have a book read aloud to them, and/or for students check out books (Gavigan et al., 2010; Kammer, 2021; Mohamad, 2017). This practice severely limits librarians’ ability to meet with teachers to co-plan and co-teach lessons that integrate digital literacy into academic content (Mohamad, 2017). Consequently, the AASL has recommended the transition to what is referred to as a flexible schedule where librarians are freed to arrange for collaboration (Mohamad, 2017).

An additional barrier researchers have found that limits librarians’ abilities to collaborate with content teachers is that teachers are unaware of the potential benefits and services the librarians at their school can provide (Gwyer, 2018; Kammer et al., 2021; Montiel-Overall, 2007; Witte et al., 2015). Along those same lines, some researchers have identified yet another collaboration barrier in that many teachers do not know librarians are digital literacy experts and/or they fear giving up autonomy in their classrooms. (King, 2019; Mandrell, 2018; Montiel-Overall & Grimes, 2013; Spengler, 2015). These particular circumstances leave librarians only the option of teaching digital literacy out of context in stand-alone situations (Phillips & Lee, 2019) and thus unable perform assessments during real-world research projects (Puccia, 2017; Sondergeld &
Johnson, 2019). All of these barriers have been linked to the possible lack of administrative support (Kammer, 2021).

**Benefits of Teacher and Librarian Collaboration**

Even though teacher and librarian collaboration has its challenges, the benefits have been shown to have a significantly positively effect on student success, teachers’ self-efficacy in teaching digital literacy, and librarians meeting their own state standards.

In this section each of these benefits will be explored based on previous research.

**Student Benefits of Teacher and Librarian Collaboration**

Indeed, studies have shown that when librarians collaborate with teachers to co-teach lessons, deeper student engagement was reported (Maharaj, 2015; McPherson & Dubé, 2016). In addition, research has shown increases in students’ overall academic success when students have been taught in a librarian/teacher collaborative environment (Gretter & Yadav, 2016; Latham et al., 2013; Lee et al., 2017; Lowe et al., 2020; Ward, 2019). In accordance with these studies, Crary (2019) found that “low level[s] of collaboration reported has a negative impact on test scores in reading and language arts” (p. 5). To further illustrate the extent of students’ academic success when the collaborative relations between teachers and librarians are supported by school administration, Witte et al. (2015) reported the following:

Where there is more collaboration between librarians and teachers backed up by administrators, scores on the state Reading and Language Arts tests increase by about six percent over schools without, a proportional difference of almost 13% over schools where administrators consider collaboration anything less than essential” and Language Arts tests increase by about six percent without, a
proportional difference of almost 13% over schools where administrators consider collaboration anything less than essential. (p. 211-212)

For the purposes of this study, students test scores on a social studies unit summative assessment will be analyzed to gage student success when a teacher and a librarian fully collaborate and co-teach the social studies unit with digital literacy infused into the content.

**Teacher Benefits of Teacher and Librarian Collaboration**

One of the benefits for teachers when they collaborate with librarians in units that infuse digital literacy is librarian-led embedded professional development, which as Harada (2016) pointed out, provides a professional development platform for teachers that is “a learner-centered constructivist approach” (p. 2). In addition, studies have shown increased content teacher self-efficacy in teaching digital literacy because collaboration with a librarian allows teachers to watch and participate as the librarian models teaching digital literacy (Harada, 2016; Sadaf & Gezer, 2020). This gives the teacher a chance to practice while there is an expert on hand, which helps them develop a stronger sense of self-efficacy (Harada, 2016; Sadaf & Gezer, 2020). Indeed, Patterson et al. (2017) found that overall, teachers experience feelings of greater self-efficacy when participating in collaborative teaching.

In addition to increased teacher self-efficacy in teaching digital literacy, some of the barriers associated with the amount time it takes for teachers to plan integrated units can be removed because librarians can help share the burden of planning (AASL, 2018b). Further, Lawson and Laduke-Pelster (2017) found that with a librarian actually working alongside of a classroom teacher while teaching, the need for dedicated professional
development sessions is often eliminated. One final and perhaps the most important benefit for teachers when they collaborate with librarians is the positive effects collaboration has on their students’ academic success, which research has shown includes higher student test scores and deeper student engagement (Latham et al., 2013; Lowe et al., 2020; McPherson & Dubé, 2016). These student achievements not only reflect positively on the teacher’s skills when they are evaluated but also the on the evaluations of the school and district as a whole (Lei et al., 2018).

**Librarian Benefits of Teacher and Librarian Collaboration**

As stated earlier, librarians often teach digital literacy in stand-alone situations and out of context (Phillips & Lee, 2019). The lessons often occur in the form of a brief library introduction and digital literacy overview at the beginning of the school year (Phillips & Lee, 2019). These brief digital literacy lessons do not provide complete, real-world situations, like an integrated unit does, and thus do not provide adequate digital literacy instruction (Reynolds, 2016). Conversely, collaboration on core content academic units allows for librarians to teach digital literacy in context so students can better learn these skills (Dooley et al., 2016). Further, when librarians collaborate with teachers on real world projects, they have the means to perform contextual assessments and truly gage their students’ digital literacy learning (Pucci, 2017; Sondergeld & Johnson, 2019). Finally, besides being able to fulfill their profession responsibilities by meeting the standards outlined by the AASL and the ISTE, perhaps the most important benefit for librarians when they fully collaborate with teachers is that they are allowed to help people become more literate in all ways which is the heart of librarianship as a whole (AASL, 2018a; Condic, 2016; Dodson, 2020; ISTE, 2018).
Chapter Summary

In summary, the purpose of this mixed methods action research study was to investigate the impact of the collaborative teaching of lessons that integrate digital literacy into social studies content on sixth-grade students’ social studies unit assessment projects, student engagement, and students’ digital literacy assessment scores during a social studies learning unit at a small, rural school situated in the midlands of South Carolina. The literature was reviewed in a scholarly manner using best practices outlined by Creswell and Creswell (2018) and Mertler (2020). These practices included the use of scholarly databases using search terms related to the sections of this literature review.

In conclusion and based on the literature reviewed for this research study, students need to be taught digital literacy, which is the ability to locate, evaluate, use, and share knowledge in a digital environment so that they can effectively navigate all the digital information available to them (ALA, 2017, 2019; ED, 2017; Johnston, 2015; Wray & Mulvihill, 2018). Although classroom teachers are tasked with teaching digital literacy in their regular academic classes based on national and state academic standards (ISTE, 2018; SCDE, 2017), many of these teachers are not truly aware of what information and digital literacy entails or the academic benefits of teaching these skills properly (Crary, 2019). The literature shows, however, that librarians are uniquely positioned by dint of their training to teach information literacy (ALA, 2017; Davies-Hoffman, 2013; Dodson, 2020), and when librarians teach information and digital literacy skills in a structured
way, embedded and integrated into a curriculum, students have greater digital literacy gains and perform better academically (Lowe et al., 2020).

Studies indicate that for students to receive and then benefit from quality digital literacy instruction, teachers and librarians need to be able to meaningfully collaborate with one another to infuse digital literacy into academic content (Kammer et al., 2021). Further, research has demonstrated that not only do students benefit from this collaboration, but also teachers and librarians benefit as well (Condic, 2016; Dodson, 2020; Harada, 2016; Patterson et al., 2017; Sadaf & Gezer, 2020). Still, additional research has uncovered significant challenges for this co-teaching and collaboration to occur (Gwyer, 2018; Kammer et al., 2021; Montiel-Overall, 2007; Witte et al., 2015). However, investigations have shown that with the support of their administrations (Phillips & Lee, 2019), shared planning times, and teachers becoming aware of how librarians can help, these challenges can be overcome (King, 2019; Mandrell, 2018; Montiel-Overall & Grimes, 2013; Spengler, 2015). In summary, digital literacy is important to students’ success and because of librarians’ training and expertise, librarians can and should teach digital literacy in collaboration with regular academic teachers.
CHAPTER 3

METHODS

This mixed methods action research study was conducted to investigate the impact of collaborative teaching involving a school librarian (i.e., the researcher) and a social studies teacher on sixth-grade students’ summative unit project scores, classroom engagement, and digital literacy skills at a small, rural school situated in the midlands of South Carolina. The following research questions guided this study:

RQ1: How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects?

RQ2: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?

RQ3: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on sixth-grade students’ level of digital literacy?

Research Design

For this study, I chose action research because “action research aims at solving specific problems within a program, organization, or community” (Patton, 2002, p. 221). Action research is the most appropriate because, according to Mertler (2020), the researcher both conducts the study and participates in the research process. Further, true to the purpose of action research, the outcome and findings of the research efforts will inform the personal future practices of the researcher as a professional and effect the way
lessons will be provided to students and the way professional development will be provided to colleagues at the school where the research will take place. Accordingly, this personal application is one of the main aspects of action research (Kemmis et al., 2014; Mertler, 2020).

Action research is best described by Mertler (2020) as “research that is done by teachers for themselves” (p. 6). Further, Mills and Butroyd (2014) explain that this type of research is a four-stage process that involves figuring out that there is a problem, defining the exact problem, designing and carrying out the plan to fix the problem, and then afterwards evaluating the situation to see if the plan worked (2014). Mertler (2020) states that many authors have described action research similarly with the stages being “the planning stage, the action stage, the developing stage, and the reflection stage” (p. 17). Mertler (2020) further explains that the process should be cyclical in that after the final stage, the researcher should reflect upon the outcomes and start again with refinements based on the reflections.

Different from traditional educational research with a primary goal to “explain or help understand educational issues, questions, and processes” (Mertler, 2020, p. 9), action research, on the other hand, does not seek to just explain, understand, or to perform observation but to improve education through activity. In general, the benefit of using action research is that the work is done by and for the practitioner who has a unique and personal perspective about a situation in which a traditional researcher who is removed from the situation would not. Tracy (2020) makes the point that “action researchers collaborate with research participants to examine issues that are contextually important and provide findings that are helpful to cultural members” (p. 282). Therefore, instead of
broad findings that are generalized for a large population, action research is specific to a community and is performed in context to the distinctiveness of that particular culture. Action research suited this study because I worked with students and teachers in my school community to solve issues that were mostly specific to my school.

This action research ultimately followed a convergent mixed methods approach which is when the researcher collects quantitative and qualitative data typically during the same time frame and then “converges or merges the….data to provide a comprehensive analysis…. in the interpretation of the overall results” (Creswell & Creswell, 2018, p. 15). The methods that were used for the quantitative portions of the study were instrument-based questions, performance data, attitude data, and statistical analysis. The method to collect the qualitative data for this study involved semi-structured interviews to gather information about the perceptions of the individuals involved and how they felt the innovation influenced their classroom engagement, and their social studies and digital literacy proficiencies. Once all the resulting data was analyzed, the researcher was able to make “inferences across both quantitative and qualitative databases” (Creswell & Creswell, 2018, p.16) and to continue forward entering into the reflection and sharing stage of the action research cycle (Mills & Butroyd, 2014; Mertler, 2020).

**Setting and Participants**

This study took place at a small, rural school situated in the midlands of South Carolina. The school is part of a small school district that has only one school for elementary students (K-4), one school for intermediate students (5-6), one school for middle school students (7-8), and one high school (9-12), with a total of about 4,000
students in the entire school district. The intermediate school where the study was performed had, at the time of the study, a school population of approximately 530 students with 25% categorized as Latino/Hispanic, 20% as African-American, 50% White, and 5% as Mixed or Other. All students were 10-12 years old.

The school had eight traditional sixth-grade social studies classes where four teachers taught two social studies classes per day. Participants in this study included one traditional sixth-grade social studies teacher and her subsequent two social studies class groups. The teacher’s two social studies classes had about 24 students with approximately half being female and half being male. The racial demographic aligned with the school population. Therefore, this study was comprised of one teacher and approximately 48 student participants that were statistically similar to the total school population. Students in traditional sixth-grade classes at the school were randomly assigned to teachers in class groups at the beginning of the school year, and were not grouped by ability, race, first language, gender, or special circumstances such as behavioral or cognitive individual educational plans.

The teacher participant was a white female who has been teaching for 26 years. She started teaching in another significantly larger suburban school in the midlands of South Carolina in 1996 with the remaining 23 years being spent in the school district in which the study was performed. She was certified to teach in South Carolina with a certification in Elementary Education. The teacher had a Bachelor of Education from Columbia College. She was elected teacher of the year in 2008/2009 and was considered by the district to be a master teacher.
The specific sampling strategy used to select participants for this study was purposeful and criterion based (Tracy, 2020). Because the study was action research aimed at improving the researchers own practice (Kemmis et al., 2014; Mertler, 2020), and because it focused on combining sixth-grade South Carolina social studies standards and South Carolina computer and digital literacy standards, the students who were chosen to participate were sixth-grade social studies students who attended intermediate school and who were assigned to the participating social studies teacher and to the school librarian (i.e., the researcher). Further, in order to participate in the study, students had to provide their consent, as well as their parents’ or guardians’ consent through signed Informed Consent documents that were provided to the students and the parents prior to the study.

As discussed above, the collaborating teacher taught two class groups, one in the morning and one starting right before noon. For each class group, her homeroom, and the other class group, she was responsible for teaching English Language Arts for about 80 minutes and Social Studies about 45 minutes every day. The teacher also took her student groups to various related arts classes that were scheduled regularly throughout the week and ate lunch with her homeroom group in the classroom each day.

Her classroom was 24 feet wide by 30 feet long with one door, one 30-inch-wide window that could open to the outside, and one classroom sink and counter. The walls were light blue painted cinder blocks. The room was set up so that students sat in rows in individual desks arranged perpendicular to the door and all facing a smartboard that was connected to the teacher’s desktop computer. An Epson projector was also connected to
the teacher’s desktop computer and was used to project images and videos onto the smart board.

For ease of discussion, the two student groups are discussed as Group A and Group B. Table 3.1 illustrates the demographics of each student group as well as the demographics of both groups combined. Group A was with the teacher from 8:20 until 9:00 AM for breakfast and then again from 11:00 until 2:10 when she taught them English Language Arts and social studies. Group B is discussed as her team members homeroom group whom she taught English Language Arts and social studies to from 9:00 AM until 11:00 daily.

There were 25 students in Group A. All of the students were 11 or 12 years old. There were 12 white students, 8 African American Students, and 4 Hispanic students. There were 9 female students and 16 male students. Five students regularly attended pull-out remediation resource instruction special education for math or ELA and three students regularly attended pull-out special education Gifted and Talented services. Three students were emergent English speakers who spoke and read Spanish and received English Language services.

There were 23 students in Group B. All of the students were 11 or 12 years old. There were 10 White students, three African American Students, eight Hispanic students and one student who identified as mixed race/other, which in this student’s case was White/African American. There were 10 female students and 12 male students. Four students regularly attended pull-out special education remediation instruction for math or ELA and no students regularly attended pullout Gifted and Talented special education.
services. Four students were emergent English speakers who spoke and read Spanish and who received English Language services.

Table 3.1

Student Participant Demographics

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<th>Group B - 23</th>
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Description of the Action/Innovation

The innovation implemented in this mixed methods action research study was the co-teaching of a social studies unit that incorporated the *South Carolina Computer Science and Digital Literacy Standards* co-taught by a social studies teacher and a school librarian. The researcher, who was the school librarian, and the core-content social studies teacher, collaborated on the design of the innovation unit based on the South Carolina sixth-grade social studies standards as well as the computer science digital
literacy standards that were prescribed by the South Carolina Department of Education at the time of the study (SCDE, 2017; SCDE, 2019).

The innovation was twofold in that 1) the social studies unit was infused with computer science standards that include digital literacy skills instruction, and 2) the librarian co-taught the unit with the regular social studies teacher. Normally, core-content teachers at the school taught their instructional units alone, and without incorporating computer science and digital literacy standards. For this study, the researcher and the teacher met several times face-to-face to develop the lessons for the unit. The intention was for the researcher to be in the class every day during the social studies lesson teaching side-by-side with the regular core content teacher. The core content teacher taught the South Carolina sixth-grade social studies standards while the researcher taught the South Carolina Computer Science and Digital Literacy Standards infused within the social studies content.

In order to achieve this, the researcher provided enhanced images, demonstrations, and examples using educational technology and digital literacy best-practices, and then assisted students as they did their regular class work. Further, the researcher assisted the students with their social studies unit projects and presentations that used the online presentation tool Prezi which allowed for student collaboration. These specific activities addressed the 2017 South Carolina Computer Science and Digital Literacy Standards 6.DL.1, “Use software applications to collaborate and create authentic products” (SCDE, 2017, p. 33), 6.DA.2.1, “Explore real-world data collection” (SCDE, 2017, p. 36), 6.DA.3, “Analyze various ways to visually represent data.” (SCDE, 2017, p.36), 6.IC.3.1
“Identify guidelines for safely using the internet” (SCDE, 2017, p. 37), and 6.IC.4.1
“Evaluate how legal and ethical issues shape computing practices” (SCDE, 2017, p.37).

**Rationale of the Innovation**

Core-content teachers are required by state and national teaching standards to teach
digital literacy infused into their content, but they rarely do. Librarians are required by
their state and national standards to collaborate and co-teach with core-content teachers,
but again, they rarely are afforded this opportunity. The innovation for this study was to
allow a core-content teacher and a librarian to fully collaborate on a social studies unit of
study that infused digital literacy, for which the librarian was an expert, into the academic
content, for which the content teacher was an expert, so that students were taught vital
digital literacy skills within a real-world context, all in hopes of showing how this
innovation could enhance student engagement and therefore increase students’ academic
success. If the data collected from this study illustrated enhanced student engagement and
higher project assessment scores, the researcher hoped that those successes would
encourage teachers at the school to be more open to teacher-librarian partnerships.
Further, the researcher hoped that enhanced student success would induce the school
administration to allow more collaboration amongst the librarian and teachers by
allowing time set aside for shared planning which was not accounted for at the time of the
study.

Studies have shown that students who experience greater classroom engagement in
subject matter not only do better in the class in which they are engaged, but also better
academically overall and that this overall academic success influences their chances of
doing better in life as adults (Fredericks et al., 2004; Greene, 2015; Sesmiyanti, 2016;
Wallace-Spurgin, 2020). In addition, studies have shown that when teachers and librarians collaborate and co-teach lessons, students experience greater classroom engagement (Maharaj, 2015; McPherson & Dubé, 2016). Further, national and state standards require core-content teachers to provide digital literacy instruction infused within their content, yet research has shown that teachers do not because they often do not know that this is a requirement, they do not know how, or they do not have time to plan these types of lessons (Crary, 2019; Elstad & Christophersen, 2017; King, 2019; Marksbury, 2017; Witte, 2015). This results in students not receiving satisfactory digital literacy instruction (Crary, 2019; Dooley, 2016; Falloon, 2020; Shaw, 2017). Librarians are trained and therefore capable and qualified to teach digital literacy (ALA, 2017, 2019; Condic, 2016; Cooper, 2015; Johnston, 2015; Luetkemeyer, 2017; Potnis & Allard, 2018; Wine, 2016). However, during regular and common library operations, librarians do not have the opportunity to adequately teach digital literacy (Phillips & Lee, 2019; Puccia, 2017; Sondergeld & Johnson, 2019).

In summation and keeping in mind the above-mentioned benefits that occur when librarians and teachers collaborate, this research study’s innovation addressed both increased classroom engagement as well as digital literacy instruction infused into content. In essence, the teacher was able to meet state standards requiring that digital literacy be infused into the content, and the librarian was able to meet state standards by collaborating with the teacher. The teacher provided subject matter expertise while the librarian provided digital literacy expertise, and in doing so, students benefited by being more engaged and having digital literacy instruction.
Regular Social Studies Instruction Without the Innovation

At the time of this study, in South Carolina, social studies was taught by the teacher first introducing the unit, describing the timeline, and then using mostly standards-based online links provided by the South Carolina Department of Education as well as teacher-selected print resources such as the social studies textbook to teach students about the events, places, and people involved in an era of historical significance. For South Carolina sixth-grade students, social studies instruction focused on world cultures and events, as opposed to American or South Carolina history, which were fifth-grade social studies topics in South Carolina. Within the sixth-grade typical social studies unit, the teacher covered the topics for the unit divided up in logical chunks for each day’s instruction on that topic. For example, days one and two would include the introduction and overview of the era. Then, days three and four would be an overview of the major events and locations where the events occurred. This would be followed by days five and six where an overview of the people involved in the changes that occurred for the era would be provided. Days seven through days ten or twelve would be spent discussing individual events, people, places, and innovations that occurred during the era and how those impacted the world at that time, as well as the overreacting impact on future cultures and societies. This information was mostly delivered through direct instruction with textbook references and activities such as map-building activities and worksheets.

The summative assessment for the social studies unit was usually a handmade project such as a poster or diorama, or a Google Slides presentation. The rubric for grading these projects included sections on social studies content, appearance and
mechanics, and reference and citation skills involving digital literacy (see Appendix B). There was no written or online test required for proof of mastery as the school had moved away from traditional summative tests for social studies and had begun to focus on authentic assessment practices such as project-based assessments.

**Regular Digital Literacy Instruction Without the Innovation**

For the researcher/librarian at the school where this study was performed, the typical digital literacy instruction involved showing students the SC Discus website and then talking to them about the need to cite sources for both images and information to avoid plagiarism. This instruction occurred in the library during the library orientation class period when teachers brought their students for the first time at the beginning of the school year to check out books. This digital literacy instruction was brief and incomplete because the librarian only had about fifteen minutes to teach students what should be covered over an extended amount of time and within the context of a research project so that students could apply what they had learned to a real and relevant exercise.

**Co-Teaching Instruction**

**Core-Content Teacher Instruction with the Innovation**

For the innovation unit the teacher used her typical teaching structure for social studies instruction where the topics for the unit were divided into segments for each day’s lessons. Before the innovation unit, during the pre-innovation stage, the collaborating teacher provided all the relevant content information for the researcher to incorporate into a more detailed, moment-by-moment and day-by-day lesson plan for the entire unit. The below description of the unit’s daily activities is given with example topics to help clarify what the final unit looked like.
Using *Connecting Hemispheres* and *Intellectual Revolutions and Political Philosophies* as the overreaching topics for the unit, days one and two included the introduction and overview of the topics. The social studies teacher first explained that the time period that was to be studied ranged from the fall of the Roman Empire in the 5th Century to the late Renaissance, and that during this time period the world changed dramatically. A broad overview of the countries involved, and the beginning philosophies were mentioned which would include descriptions of Christianity, early Catholicism, and early scientific discoveries. Days three and four included an overview of the major events such as the Scientific Revolution and Enlightenment and how expanding global interactions in commerce and innovations might have caused changes in philosophies. Days five and six was an overview of the governmental systems involved in the changes that occurred for the era including absolute and constitutional governments. Days seven through days twelve were spent discussing individual events, people, places, and innovations that occurred during the eras and how these impacted the world at that time as well as the overreacting impact on future cultures and societies. Examples of focused topics for these days included discussions and research about France’s Louis XIV, Russia’s Peter the Great, the Ottoman Empire’s Suleiman the Great, and Japan’s Ieyasu-Tokugawa Shogunate, Lutheranism, Calvinism, the Anabaptists, and later Catholicism.

For these topics that made up the unit as a whole, the social studies teacher used direct instruction along with her standards-based online links provided by the South Carolina Department of Education and her selected print resources (i.e., the social studies textbook, library books, and printed images such as maps and posters) to teach students about the historically significant events, places, and people of the eras. The researcher,
for the social studies instruction, added additional videos, academic history websites, Google Earth interactive sites, Google Arts and Culture, Ebsco’s History Reference Center database, SC Discus union database sources, museum databases such as the Vatican Library, Image, and Museum Database, and interactive games about eras and people.

**Digital Literacy Instruction with the Innovation**

Besides adding the additional online social studies content materials mentioned above, the researcher taught the students how to search for relevant information on the content subject matter, how to avoid misinformation, how to use web addresses and information on websites to judge the validity of the information, and how to locate more in-depth information using union databases such as SC Discus. In addition, the researcher taught students how to visit museums and international websites that are interactive and/or in foreign languages. For non-English websites, the researcher taught students how to translate these sites for readability.

The digital literacy instruction was interwoven within the content instruction. On days one and two of the innovation unit the researcher provided instruction on how to use SC Discus to find history databases that offer scholarly articles and images of original texts associated with the unit such as images of print created by the Gutenberg printing press. The researcher also taught students how to use limiters within the databases search options to select Lexile Measures that were on the reading level of typical 6th grade students. Further, videos from National Geographic and the History Channel were provided to the students with a brief and preliminary mention of the necessity of citing references.
Days three and four included how to use Google tools to discover deeper, more in-depth information about places, people, and cultural artifacts (Google Earth and Google Arts and Culture). Instruments developed during the scientific revolution as well as images of the sacraments used during religious rites before and after the Protestant Reformation were used as examples for students to learn how to effectively use Google tools to conduct research.

On days five and six the researcher covered how to find relevant and reliable sources from general Google searches using Wikipedia and website URLs that link to original sources. This also included looking at individual websites and finding information about when the site was updated, who the author(s) was (were), looking for propaganda and bias, and checking to see if the source was reliable based on occurrences such as misspelled words or contradictory information after checking other reliable sites.

On days seven through ten the researcher taught students how to do further, in-depth, and focused research about topics within the unit’s scope and how to cite sources needed for research projects. This included students searching for biographies about Louis XIV, Peter the Great, Suleiman the Great, Ieyasu-Tokugawa Shogunate, or Martin Luther, and then practicing creating citations for the bibliographic sources that they discovered.

Following the completed social studies content delivery by the teacher on day 10, the researcher and the teacher explained to the students that the unit summative assessment project, which was like the previous unit’s summative project in that the students would create a project on some topic associated with the era. However, instead of this project being presented as a physical poster, diorama, or Google Slides
presentation, the project was to use the digital presentation platform of Prezi. The requirements for success were the same as the previous unit with the standard social studies project grading rubric being used as a guideline for grading.

On days 11 through the end of the unit, day 31, the researcher taught students where to search to find the best information and how to gather information and images about their chosen project topic in an ethical manner i.e., observing copyright laws and citing sources. The researcher also provided students with instruction on how to use Prezi, and how to share their final projects with their classmates, their teachers, and the academic community in a safe manner. Finally, the researcher taught students how to cite their sources in an organized manner using MLA guidelines. Students then created their projects with the help of the teacher and the researcher. The unit was originally supposed to be three weeks, but due to COVID-19 disruptions, it lasted a month.

The overall design of the innovation unit was to allow both the core content teacher and the librarian to thoroughly address both sets of teaching standards fused together in a coherent collection of learning activities that would keep students engaged and learning. Table 3.2 outlines the daily activities for the innovation unit aligned with the South Carolina Social Studies College and Career Ready Standards (SCDE, 2019) and the South Carolina Computer Science and Digital Literacy Standards (SCDE, 2017).

**Table 3.2**

*Innovation Unit Teaching Activities with Standards Alignment*

<table>
<thead>
<tr>
<th>Daily Activities</th>
<th>Core Content Teacher</th>
<th>Librarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days 1 and 2</td>
<td>Introduction and overview of the era using direct instruction, textbook, print and online resources.</td>
<td>Introduction to scholarly databases, how to use SC Discus, and brief overview of documenting and citing</td>
</tr>
<tr>
<td>Days 3 and 4</td>
<td>Discussion and descriptive overview of the individual major events and specific locations where these events occurred using direct instruction, text book, print and online resources.</td>
<td>Demonstration using Google Earth and Google Arts and Culture to discover deeper, more in-depth information about places, people, and cultural artifacts using direct instruction, guided practice and independent practice.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Days 5 and 6</td>
<td>Discussion and descriptive overview of the people and philosophies that existed and then arose during the era the using direct instruction, text book, print and online resources.</td>
<td>Demonstrations on finding general research sources based on currency, relevance, authority, accuracy, and purpose using direct instruction, guided practice and independent practice.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Days 7 and 8</td>
<td>Discussion and descriptions of individual events, people, places, and innovations that do specific research using limiters and Boolean</td>
<td></td>
</tr>
<tr>
<td>Days 9 and 10</td>
<td>Continued discussion and descriptions of individual events, people, places, and innovations that occurred during the era and how these impacted the world at that time as well as the overreacting impact on future cultures and societies using direct instruction, text book, print and online resources.</td>
<td>Continued instruction on how to do specific research using limiters and Boolean operators and how to set up reference lists and format citations in text using direct instruction, guided practice and independent practice.</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| South Carolina Modern World History Social Studies Standards: | MWH 6.2.CO  
MWH 6.2.CE  
MWH 6.3.CO  
MWH 6.3.CE  
MWH 6.3.CC  
MWH 6.4.CO | South Carolina Computer Science and Digital Literacy Standards:  
6.CS.1.2  
6.AP.5.1  
6.AP.5.2 |
| Days 11through 30 | Continued discussion and descriptions of individual events, people, places, and innovations that occurred during the era and how these impacted the world at that time as well as the overreacting impact on future cultures and societies using direct instruction, text book, print and online resources. | Guided practice using research sources, direct instruction concerning ethical use of materials, observing copyright laws, and avoiding plagiarism. Direct instruction, guided practice, and independent practice using online presentation tools. Direct |
| South Carolina Modern World History Social Studies Standards: | MWH 6.2.CO  
MWH 6.2.CE  
MWH 6.3.CO  
MWH 6.3.CE  
MWH 6.3.CC  
MWH 6.4.CO | South Carolina Computer Science and Digital Literacy Standards:  
6.CS.1.2  
6.AP.5.1  
6.AP.5.2 |
Data Collection

Four sources of data were used to answer the research questions for this study. Each data source was chosen to evaluate an aspect of the effects of teacher-librarian collaboration when teaching content standards infused with digital literacy. The four data sources included (1) a school developed social studies unit project assessment rubric (see Appendix B) used to assess student projects at the end of the non-innovation unit just prior to the innovation unit, and then again at the end of the innovation unit, (2) an online classroom engagement inventory (see Appendix C) administered to the participating students right before the end of the non-innovation unit just prior to the start of the innovation unit, and then again at the end of the innovation unit, (3) an online digital literacy assessment (see Appendix D) given to the students at the end of the non-innovation unit just prior to the innovation unit, and then again at the end of the innovation unit, and (4) semi-structured interviews (see Appendix E) conducted with a sample of students at the end of the innovation unit.
Table 3.3 lists the data sources that were used to collect and analyze information to answer each research question for this study. The first research question involved students’ project assessment scores which were quantitative in nature and were analyzed using descriptive statistical analysis to compare pre- and post-innovation scores. Qualitative data was used to supplement the quantitative data for this research question and came from interview data described more in-depth below.

The second research question involved students’ classroom engagement and contained both qualitative and quantitative elements with two separate instruments contributing to data sources. The first was the classroom engagement survey given to students during the unit prior to the innovation unit and then again at the end of the innovation unit which provided quantitative data and used a Likert scale response format. The second data source used to answer Research Question 2 was qualitative in nature and was a semi-structured interview protocol involving questions about classroom engagement given to purposefully selected top, middle, and bottom scoring students in each of the two classes as determined by combining the student participants scores from their classroom engagement survey, their online digital literacy assessments, and their summative project scores at the end of the innovation unit collaborative teaching cycle.

The third research question involved students’ potential gains from digital literacy instruction. The data sources to answer this research question also contained both qualitative and quantitative components. The quantitative data came from the Online Digital Literacy Assessment adapted from the TRAILS Digital Literacy Assessment instrument created by Kent State University Libraries (TRAILS, 2019). The instrument asks students to choose the best of four answers to specific questions related to digital
literacy knowledge and best practices. The scores from the tests were given in percentages of correct answers. The test was given before and after the innovation unit. The semi-structured post-innovation interviews described above provided qualitative data concerning students’ perceptions of how digital literacy instruction infused within the social studies content influenced their scores on the digital literacy assessment and was used to compliment the qualitative data.

**Table 3.3**

*Research Question and Data Sources Alignment*

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects?</td>
<td>School District Developed Pre- and Post-Innovation Summative Social Studies Unit Project Rubric Scores</td>
</tr>
<tr>
<td></td>
<td>Semi Structured Post-Innovation Interviews</td>
</tr>
<tr>
<td>RQ2: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?</td>
<td>Classroom Engagement Pre- and Innovation Unit Survey Data</td>
</tr>
<tr>
<td></td>
<td>Semi Structured Post-Innovation Interviews</td>
</tr>
<tr>
<td>RQ3: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on six-grade students’ level of digital literacy?</td>
<td>Pre- and Post-Innovation Online Digital Literacy Assessment Scores</td>
</tr>
<tr>
<td></td>
<td>Semi Structured Post-Innovation Interviews</td>
</tr>
</tbody>
</table>

**Classroom Engagement Inventory Data**

The Classroom Engagement Inventory is an online questionnaire administered to students during the latter portion of the pre-innovation social studies unit and then again during the later portion of the innovation unit. (See Appendix C). The Classroom Engagement Inventory used for this study was adapted from the Classroom Engagement Instrument (CEI) created and validated by Wang et al. (2014) to investigate students’
emotional, behavioral, and cognitive engagement in a classroom setting. Wang et al. (2014) created their survey so as to accommodate the subject being taught and the age of the students. Their CEI has been validated and used in numerous studies related to student engagement (Cummings, 2020; Manzano-León et al., 2021). According to Wang, Bergin, and Bergin (2014) the “internal consistency, calculated as Mc-Donald’s omega, of each of the five engagement factors ranged from .82 to.90” (2014, p. 532). Further, the CEI developed by Wang, Bergin, and Bergin has been validated and used in additional studies related to student engagement (Cummings, 2020; Manzano-León et al., 2021), with Manzano-León et al. (2021) specifically reporting that “the Cronbach alpha values were higher than 0.70 in the subscales” (p. 1011). Permission to adapt and use this instrument was granted by Dr. Wang through email on 4 October 2021. (See Appendix F.)

Using the adapted survey, this study’s data source assessed if students who are taught content along with digital literacy skills felt more engaged with the content. Within the survey, students rated their level of agreement with 23 statements. Examples of these statements are (1) when I work on this social studies unit, I feel excited, (2) when I am working on this social studies unit, I feel curious about this civilization and I want to learn more, (3) during this social studies unit I have gotten really involved in classroom activities. The levels of agreement were 1 meaning “never,” 2 meaning “rarely,” 3 meaning “sometimes,” 4 meaning “most of the time,” and 5 meaning “always.”

**Online Digital Literacy Assessment**

The Online Digital Literacy Assessment (ODLA) used for this study was adapted from the Tool for Real-Time Assessment of Information Literacy Skills (TRAILS) which
is an assessment instrument that was developed by Kent State University Libraries and has been used by libraries and librarians all over the world since 2006 to assess students’ information and digital literacy skills (Kent State University Libraries, 2019). The TRAILS assessment is a work licensed under a Creative Commons Attribution and is free to use non commercially without permission. The full version of the TRAILS Digital Literacy Assessment can be found online at https://trails-archive.org/assessment-downloads/. The assessment has several versions, one of which is specifically for 6th grade students.

The 6th grade assessment is made up of two general assessments with 20 items each and five category assessments with ten items each. The category assessments concern 1) developing topics for research, 2) identifying potential sources for research, 3) developing, using, and revising search strategies during academic and personal research, 4) evaluate sources and information during academic and personal research, and 5) using information responsibly, ethically, and legally (Kent State Libraries, 2019). The researcher adapted the 6th grade TRAILS assessment and administered this adapted version, the ODLA, to the student participants in this study before and then after the innovation unit. This assessment was aligned to the following South Carolina Computer Science and Digital Literacy Process Standard:

4. Create, test, and refine computational artifacts.
   a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
   e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts. (SCDE, 2017, p. 35)
The ODLA was also aligned to the International Society for Technology in Education standards (ISTE, 2018). Appendix G provides an alignment table listing each question and the SC standard and/or the ISTE standard to which it was aligned. Furthermore, Salem (2014) investigated the validity and reliability of the TRAILS for grades 3, 6, 9, and 12 found that the test was valid and did reliably measure students’ information literacy skills. Salem’s study (2014) reported that the 6th grade TRAILS, with $\alpha = 0.78$, which was used for this study “approached the 0.80 threshold for coefficient alpha recommended for large-scale tests in the social sciences” (p. 128).

**School District Developed Summative Social Studies Unit Project Grading Rubric**

For both the pre-innovation unit and the innovation unit, students chose and then created a project concerning some aspect of the unit’s historical era. The school district’s social studies unit project rubric was designed to be generic enough to be used in all sixth-grade social studies summative unit projects so regardless of the unit’s topic, the assessments gauge students’ social studies learning. In essence, the rubric addressed the who, what, why, when, where, of a social studies event or development, and how that event or development changed the world and the society in which the event or development occurred. To provide an example of this, students could create a unit project on the Protestant Reformation, or the Black Death and the rubric would apply to both.

One example from the rubrics’ full credit *What Happened* criterion is as follows: “Development or critical incident is clearly described in-depth with correct information about what happened and with an appropriate image(s). At least 5+ sentences are used.” Using a student project on the Black Death to illustrate, the student would need to use at least five sentences to accurately describe what the Black Death was with at least one
image that related to the disease. The description and image(s) would need to come from some documented source.

For the unit just prior to the innovation unit, students created a summative unit project as they normally would by making a physical poster using printed or drawn images and hand or machine printed text on poster board or by making a diorama using found materials and hand or machine printed text. The innovation unit’s summative project differed from the pre-innovation unit’s summative project in that instead of creating a physical poster or diorama, students were required to create an online presentation about a topic using the platform Prezi.

The rubric used to assess both the pre-innovation and post-innovation unit projects was the same. The innovation unit’s summative project differed from the pre-innovation unit’s summative project in that instead of creating a physical poster or diorama, students will create an online presentation about a topic using either Canva or Prezi. The information and images used in these projects came from various specified online sources which included using at least one online book, one reliable website (based on criteria discussed during instruction), one credible online magazine (based on criteria discussed during instruction), and one article found using a scholarly database (SC Discus). Students were required to cite their sources and paraphrase the majority of the information that they used within their projects and presentations. The curriculum coach for the district, along with the 6th grade social studies teachers, and the librarian created and then reviewed the rubric to confirm its content validity before the pre-innovation unit.
Semi-Structured Interviews

Semi-structured post-innovation interviews (see Appendix E for the protocol) were performed during the school days following the innovation unit when all participating student scores on the classroom engagement survey, the post-innovation rubric, and the digital literacy assessment had been recorded. Approximately 20% of the student participants were invited to participate in the individual semi-structured interviews. A “maximum variation” (Tracy, 2020, p.83) sampling strategy for purposive sampling was employed to understand the participants’ experience with the co-teaching between their social studies teacher and the librarian, and the infusion of digital literacy skills into social studies content. Accordingly, the researcher selected the top, middle, and low scoring students who represented the gender and racial demographics of the classes from Groups A and B to engage in one-to-one interviews using the live online Google Meet platform.

The top, middle and low scoring students were selected by combining each participating student’s pre-innovation and post-innovation project rubric scores, pre- and post- innovation online digital literacy assessment scores, and students pre- and innovation unit classroom engagement survey scores, and then selecting the students with the greatest gains, the least gains, and students whose gains were in the middle range from each class group. An example of how these scores were combined is as follows:

Student Pablo scored a 46 on the pre-innovation ODLA and a 48 on the post-innovation ODLA, this produced gains of 2 points. The same student scored a 15 on the pre-innovation unit project rubric and then a 100 on the innovation project. This produced gains of 75 points. Finally, this student Pablo scored 68 on the pre-
innovation unit CEI and a 115 on the innovation unit CEI which produced gains of 47 points. The gains were then added together, 2, 75, and 47 to produce the sum of 124, which was then used to compare to other student participants within the class group.

Student Pablo was a top scoring student for his glass group. The researcher followed the above process for each student to determine the high, middle, and low scoring students from each class, i.e., Group A and Group B.

A semi-structured interview protocol was developed following the guidance of Creswell and Creswell (2018), Jacob and Furgerson (2012) and Mertler (2020) for the structure and Seamon (2017) for loose guidance on the content. Semi-structured interview protocols are used as “guides” (Mertler, 2020, p.134) for the interviewer to ask predetermined questions and then follow up with undetermined and additional questions depending on the subject’s response (Creswell & Creswell, 2018; Mertler, 2020). For this study, the interview questions were developed to determine how students feel about the coteaching set-up as a whole, whether the coteaching set-up helped them feel more engaged in the content, and whether the infusion of digital literacy content into social studies content helped the student feel more or less engaged and more competent with digital literacy skills.

Table 3.4 illustrates how each of the questions from the interview protocol aligned to the research questions. The protocol was examined by the participating social studies teacher, the school’s curriculum coach, and educational researcher on digital literacy to determine the appropriateness of the questions in relation to the study and the appropriateness of the questions and wording regarding the age and abilities of the
students. Again, in accordance with the definition of a semi-structured interview, for this study, if the students’ answers lead to more questions, then the researcher asked related follow-up questions that were not in the script or documented below in Table 3.4 (Creswell & Creswell, 2018; Mertler, 2020). Each interview was designed to last 30 to 45 minutes and was recorded using the recording feature provided by the Google Meet application.

**Table 3.4**

*Interview Questions to Research Questions Alignment Table*

<table>
<thead>
<tr>
<th>Purpose or Research Question Alignment</th>
<th>Interview Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question included as an icebreaker (Tracy, 2020).</td>
<td>1) Please tell me how you feel about social studies as a subject. Please tell me how you feel about using technology in the classroom.</td>
</tr>
</tbody>
</table>
| RQ1: How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects? | 11) How do you think mixing digital literacy with social studies might help you on future social studies projects and in other classes?  
12) Did you experience any challenges especially on your project, during the time Mrs. Steinbeck and I were teaching together? If yes, why? If not, why? |
| RQ2: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content? | 3) How would you describe your overall experience of being a student in our social studies class when Mrs. Steinbeck and I have been working together? (Prompts: Have you been more or less interested in learning? Have you been bored? Have you happy to be in class?)  
4) Please tell me about your attention in our social studies class over the time Mrs. Steinbeck and I have been teaching together. Have you been more or less focused on our lessons? Why do you think that is? Did you pay attention more so you can answer questions and why do you think that is? |
Did you volunteer to answer questions or make comments more often? Why do you think that is?

5) Was there a time when you lost interest and stopped listening or being engaged while Mrs. Steinbeck and I were working with your class on our social studies unit? Is this something that has happened before, or did it just happen during this unit?

6) Please tell me about the things you do to help you understand the information.

When you do not understand something, what do you do? Do you need to ask the teacher to explain things and to give extra help to you or other students having difficulty?

7) Tell me about how you connect what you learn to anything else. What strategies do you use to remember what you learn?

Do you try to compare what you learned to things you have learned before?

Do you reword information?

Do you try to decide what is important to study?

Has this changed or was it any different when Mrs. Steinbeck and I were working together compared to other social studies units?

8) How do you feel about the coteaching set-up?

RQ3: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on six-grade students’ level of digital literacy?

3) Over the last couple of weeks when Mrs. Steinbeck and I have been working together, do you feel any different about how you use technology to find out information? Why or why not?

9) Did you enjoy learning about digital literacy along with social studies? Why or why not?

10) Do you feel more confident about using digital literacy tools now than you did before? Why or why not?

11) How do you think mixing digital literacy with social studies might help you on future social studies projects and in
Data Analysis

Four sources of data were used to answer the research questions for this study. All three research questions had qualitative and quantitative components. The quantitative components involved a grading rubric with numerical scores (RQ1), a questionnaire with a Likert scale response request (RQ2), and a select response assessment (RQ3) that were all analyzed using descriptive and inferential statistics to find the measures of central tendency and dispersion (Adams & Lawrence, 2019; Mertler, 2020). The quantitative data were “used as a complement” (Maxwell, 2010, p. 480) to qualitative data gathered from the open-ended question responses that were analyzed using inductive analysis to develop themes (Creswell & Creswell, 2018; Mertler, 2020; Tracy, 2020). Table 3.5 lists the data sources and the data analysis procedures that were used to collect and analyze information to answer each research question for this study.

Table 3.5

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Sources</th>
<th>Data Analysis Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: How does co-teaching instruction that integrates digital literacy and social</td>
<td>Social Studies Project Assessment</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td>studies content influence sixth-grade students’ performance on social studies unit</td>
<td>Rubric</td>
<td>Wilcoxon Signed Rank Test</td>
</tr>
<tr>
<td>projects?</td>
<td>Semi-Structured Interviews</td>
<td>Inductive Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Quantitative Data Analysis

Social Studies Project Assessment Rubric Scores

Quantitative data for Research Question 1 was gathered using the Social Studies Unit Project Assessment Rubric scores from their pre- and post-innovation projects. The collaborating teacher and the researcher both graded the pre-innovation projects. At the end of the innovation unit, the researcher and collaborating teacher graded five of the innovation projects together using the grading rubric, and then upon mutual agreement on the scores, the researcher graded the remaining projects. Descriptive statistics were used to show the measures of central tendency of students’ scores on the pre-innovation and post-innovation unit project assessment rubrics (Adams & Lawrence, 2019). Then a Wilcoxon Signed Rank test was performed to determine if there was a difference in the student performance between the units (Adams & Lawrence, 2019).

Classroom Engagement Inventory

Cronbach's alpha coefficient was used to assure the internal consistency of students’ scores on the classroom engagement (Adams & Lawrence, 2019). A Shapiro Wilk Test was performed on the data to test for normality (Taeger & Kuhnt, 2014). Because most of the subscales were not normal distribution (p <.05), a Wilcoxon Signed
Rank test (non-parametric analysis) was run to determine if there was a difference in the classroom engagement between the units (Adams & Lawrence, 2019; Taeger & Kuhnt, 2014).

**Online Digital Literacy Assessment**

Students’ scores for both pre-innovation and post-innovation Online Digital Literacy Assessment (ODLA) scores were collected and compared to determine the influence that instruction had on students’ digital literacy skills. Particularly, the Kuder and Richardson Formula 20 (KR20) test was used to calculate the internal consistency of students’ scores on the pre-innovation and post-innovation ODLA assessment (Wombacher, 2017). A Shapiro Wilk Test was performed on the data to test for normality (Taeger & Kuhnt, 2014). Then, a Wilcoxon Signed Rank test was performed to discover if students’ post-innovation digital literacy skills revealed a statistically significant difference from their pre-innovation digital literacy skills (Adams & Lawrence, 2019; Taeger & Kuhnt, 2014).

**Qualitative Data Analysis**

Qualitative data was collected using the semi-structured post-innovation interviews whereby the researcher interviewed a representative, purposefully selected sample of the top, middle, and low scoring students, once all their scores were combined from both homeroom groups of students. The researcher recorded the interviews using a captioning application and then transcribed the recorded interview responses using the captioning transcripts as a guide. Then the researcher developed a “coding scheme…to group data that provide similar types of information” (Mertler, 2020, p. 174). The codes were then incorporated into categories of responses (Creswell & Creswell, 2018; Mertler, 2020;
Tracy, 2020), which the researcher then began to “describe” (Mertler, 2020, p.175) based of specific emergent connections between the data and the research questions (Creswell & Creswell, 2018; Mertler, 2020; Tracy, 2020). These descriptions then led to the “interpretation” stage of inductive analysis where the researcher “examines events, behaviors, or others’ observations- as represented in coded categories- for relationships” (Mertler, 2020, p.175) that answer the research questions. The researcher generated a full descriptive narrative based on the students’ responses in order to present the qualitative findings for the research questions.

**Procedures and Timeline**

This study was conducted in four stages: (1) foundational activities, which included obtaining consent, final teacher-researcher planning, and preliminary data collection, (2) innovation, (3) post-innovation data collection, and (4) data analysis. The section below provides Table 3.6 which was designed to illustrate each stage and its corresponding time frame, as well as a description of the activities that occurred in chronological order.

**Table 3.6**

*Research Stages and Timeline*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Action</th>
<th>Timeline</th>
</tr>
</thead>
</table>
| Stage 1: Foundationa l Activities | ● Obtained IRB approval (Appendix A).  
● Made final lesson plans with collaborative teaching partner.  
● Obtained Informed Consent and | 3 January – 9 February 2022 |
|                        | ● Student participants returned informed consent forms.  
● Student participants took the pre-innovation classroom engagement inventory. |                              |
<table>
<thead>
<tr>
<th>Stage 2: Innovation</th>
<th>Stage 3: Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Administered the pre-innovation Classroom Engagement Inventory and scored student non-innovation unit projects along with collaborative teaching partner.</td>
<td>● Administered the post-innovation Classroom Engagement Inventory and scored student innovation unit projects along with collaborative teaching partner.</td>
</tr>
<tr>
<td>● Administered the pre-innovation Online Digital Literacy Assessment.</td>
<td>● Administered the post-innovation Online Digital Literacy Assessment.</td>
</tr>
<tr>
<td>● Student participants took the pre-innovation online digital literacy assessment.</td>
<td>● Student participants took the post-innovation Online Digital Literacy Assessment.</td>
</tr>
<tr>
<td>● Student participants engaged with the innovation procedures.</td>
<td>● Student participants took the post-innovation Classroom Engagement Inventory.</td>
</tr>
<tr>
<td>● Students created unit summative projects.</td>
<td>● Student participants took the post-innovation Online Digital Literacy Assessment.</td>
</tr>
<tr>
<td>10 February – 17 March 2022</td>
<td>18 March – 24 March 2022</td>
</tr>
</tbody>
</table>

- Stage 2: Innovation
  - Taught the innovation unit alongside the collaborating teacher.

- Stage 3: Data Collection
  - Administered the post-innovation Online Digital Literacy Assessment.
  - Conducted semi-structured interviews with eight students.
Stage 4: Data Analysis

- Transcribed, coded, and interpreted interview responses.
- Used statical analysis to examine pre- and post-innovation data from project grading rubrics, Classroom Engagement Inventories and Online Digital Literacy Assessment.

<table>
<thead>
<tr>
<th>Stage 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1</strong> of the research study focused on foundational activities that needed to be in place before the delivery of the innovation and then the data collection. These preliminary activities included obtaining participant and parental consent to allow students to participate in the study, collecting pre-innovation data, and the final planning and preparation of the day-to-day teaching procedures and duties of both the collaborating teacher and the researcher. This stage was approximately 4 weeks long. This stage, as with Stage 2 and Stage 3, was significantly impacted by the extremely high number of student and teacher absences because of COVID-19 Omicron illnesses and quarantines. Nevertheless, the researcher provided students and parents with information about the unit, the research aims, and consent forms, and then gathered student consent forms to finalize the participant list. Meanwhile, the collaborating core content teacher and the researcher thoroughly outlined the unit plan instructions. This plan included what was to be taught and how it was to be delivered with the specific dates and times each</td>
</tr>
</tbody>
</table>
teacher would be teaching. Also, during this stage, the researcher administered the pre-innovation Classroom Engagement Inventory to student participants, jointly scored student non-innovation unit projects along with the teacher and administered the Online Digital Literacy Assessment.

_Informed Consent_

Before the pre-innovation social studies unit, the researcher sent home a parental consent form (see Appendix H) to the parents of all the students that were in the collaborating teacher’s two social studies classes. The informed consent form included an explanation of the potential benefits of the students’ participation in the study which involved being able to receive digital literacy instruction in the context of a social studies unit, being able to help the teacher and the librarian strengthen their co-teaching skills, and being able to help other practitioners improve potential school practices by providing data that could benefit other teacher-librarian collaborative activities.

Upon receiving the returned parental consent forms, all students whose parents agreed to allow their children to participate in the study were given a student consent to participate form to sign (see Appendix I). Those students who had consented to be a part of the study, and whose parents had also agreed, were noted so that their information and data was the only data collected.

_Final Planning of Unit Instructional Activities_

While the non-innovation unit was being taught to the students, and still in Stage 1 of the research study, the researcher and the teacher met several times to finalize the day-by-day lesson plans for the innovation unit. These meetings allowed the teacher and
researcher to specifically outline what content would be addressed, how it would be taught, when it would be taught, and who would deliver the instruction.

**Pre-Innovation Data Collection**

Prior to the innovation unit, the students received regular social studies instruction for a unit of study. At the end of that unit, the researcher needed to gather pre-innovation data in order to make pre- and post-innovation comparisons on student classroom engagement (RQ2), summative unit project scores (RQ1), and digital literacy learning (RQ3). Before the innovation unit the researcher administered the Classroom Engagement Inventory (see Appendix C) in order to gather pre-innovation classroom engagement data. Student participants were also given the Online Digital Literacy Assessment to provide pre-innovation data (see Appendix D). In addition, the researcher helped to grade the pre-innovation unit projects using the district’s 6th Grade Social Studies Project Grading Rubric (see Appendix B). This was to ensure consistency in grading for the unit assessment for the innovation unit.

Following the foundational activities stage for this study, the innovation unit then took place in which the collaborating teacher and the researcher co-taught social studies content that was infused with digital literacy instruction.

**Stage 2**

During Stage 2 of the research study, the collaborative core content teaching partner and I taught the collaborative social studies unit that infused digital literacy into social studies content. The student participants learned about the unit’s subject matter and then created online digital projects about their chosen topics. The collaborating teacher
taught social studies content and I taught digital literacy skills within the context of social studies content.

**Stage 3**

Stage 3 of the research study is involved in data collection. I provided student participants with the post-innovation Classroom Engagement Inventory, administered the post-innovation Online Digital Literacy Assessment, and graded the students’ projects using the Social Studies Project Assessment Rubric. The first five projects were graded jointly with the collaborating teacher. During that time, I also determined which students would be asked to participate in the semi-structured interviews (see Appendix E for protocol), and then conducted the interviews using recorded Google Meet sessions that included preliminary transcripts provided through the Google captioning application.

**Stage 4**

In Stage 4 of the research study, I analyzed the data. First, I listened to the recorded interviews and cleaned up the transcripts for the semi-structured interview responses. Then I coded the interviews, created categories from their coded responses, and discovered emerging themes concerning how students perceived the co-teaching method and its influence on their engagement and learning. Further, an analysis of the pre- and post-innovation unit Classroom Engagement Inventory scores was performed using a Wilcoxon Signed Rank test to determine if there was a difference in the classroom engagement between the units. This same process was used to analyze the Online Digital Literacy Assessment scores and the rubric scores.
Rigor and Trustworthiness

According to Mertler (2020) “quality research must meet standards of sound practice” (p. 26). For action research these standards must be applied so that all parts of the entire process are free from bias and yield results with fidelity (Mertler, 2020). Further, according to Mertler (2020), rigor “refers to the quality, validity, accuracy and credibility of action research and its findings” (p.315). To ensure the rigor and the trustworthiness of the findings, this section reviews the measures that were taken for all sources of data.

Quantitative Data and Findings

All three research questions had quantitative factors. For RQ1, I relied on the core-content teacher and the school curriculum coordinator to validate the content and values assigned to each social studies section and appearance and mechanics section of the Social Studies Unit Project Assessment Rubric. In the capacity of the librarian and digital literacy expert, I validated the digital literacy skills sections of the rubric. Both the teacher and the curriculum coach were trained in assessing students’ social studies mastery using rubrics. For the digital literacy section, the researcher used the South Carolina Digital Literacy Standards to determine the requirements needed for mastery and validated their requirements on the rubric. Both the teacher and the curriculum coach reviewed the rubric’s entire contents and approved the rubric based on their professional expertise.

For the quantitative portions of RQ2, i.e., the classroom engagement pre-and post-innovation survey, and for RQ3, i.e., the pre- and post-innovation Online Digital Literacy
Assessment, I adapted two previously validated and well-known instruments used widely in the field of education.

Evidence of validity is concerned with the fact that the “data that have been collected accurately measure what they purport to measure” (Mertler, 2020, p. 315). The validity for the Classroom Engagement Inventory and the Online Digital Literacy Assessment instruments were confirmed by both peer reviews of the actual responses to the questions and “statistical estimate[s] of the reliability” (internal consistency) of the survey and assessment (Mertler, 2020, p. 157). Likewise, the scores from the Social Studies Project Assessment Rubrics were confirmed by the member checking of the rubric scores alongside the student project submissions. Employing peer examiners refers to the process of having other professionals examine a researcher’s data and analysis for rigor and trustworthiness (Mertler, 2020). For all the quantitative data collected for this study, extensive peer review occurred.

**Qualitative Data and Findings**

Qualitative data collected for this mixed method action research study came from semi-structured interviews. I ensured “the valid use and interpretation” of the data (Maxwell, 2010, p. 479) through peer examination, triangulation, and rich description (Tracy, 2020).

**Peer Debriefing**

I asked fellow doctoral students and my dissertation committee chairman to provide “peer debriefing” by “reviewing and critiquing the process of data collection, analysis, and interpretation” (Mertler, 2020, p. 143) which allowed me to reflect and assess the methods and findings for this study.
**Triangulation**

Triangulation occurs when a researcher uses several different sources to collect data about a topic to ensure trustworthiness (Mertler, 2020). In mixed methods research, triangulation can mean combining qualitative and quantitative data (Creswell & Creswell, 2018). For this study, I collected data from several sources (i.e., unit project assessment rubrics, digital literacy assessments, student interviews, and classroom engagement surveys) in order to use triangulation.

**Rich, Thick Description**

Rich, thick description (Creswell, 2013) is a means by which researchers describe in detail the findings or assertions that they are able to make based on the analysis of their qualitative data. By combining the findings from students’ semi-structured interviews, the I developed a thick and fully developed narrative to provide information about the students’ perceptions of the innovation involved in the study.

**Sharing and Communicating Findings**

The findings and resulting plan of action were to be shared with participants, including both the teacher and the students, through a detailed email message. This email message included a link to a Google Form survey filled out anonymously that asked participants to provide their thoughts and recommendations concerning the study findings as well as the research process that was followed. The administrators of the school, the curriculum coach, the other librarians in the district, the district technology coordinator, and the district superintendent all had an interest in the findings of this study, and as such received a printed, detailed report of the findings. The University of South Carolina, College of Education, received the findings of my study included in my dissertation.
In order to protect the identities of the participants, all names, email addresses, and identifiable test scores (for students) were removed from documents shared with any school or district stakeholders. Further, the school and school district names and any other identifying information, along with the identifiable participant information, was removed from the entire document before being submitted to the dissertation committee.
CHAPTER 4
ANALYSIS AND FINDINGS

The purpose of this mixed methods action research study was to investigate the impact of collaborative teaching involving a school librarian (i.e., the researcher) and a social studies teacher on sixth-grade students’ summative unit projects, classroom engagement, and digital literacy skills. The research questions used to guide the investigation were 1) How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects? 2) What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?, and 3) What are the effects of co-teaching instruction that integrates digital literacy and social studies content on six-grade students’ level of digital literacy?

In order to collect data for this study, I, in the role of the school librarian, surveyed social studies students on their classroom engagement at the end of a social studies unit taught solely by the content teacher, administered an online digital literacy assessment, and helped grade students’ pre-innovation social studies projects with the social studies teacher. Then, I, adding digital literacy instruction infused into the learning content, co-taught a social studies unit with the sixth-grade social studies teacher. Near the end of this innovation unit, I administered the Classroom Engagement Inventory (CEI) again. Further, at the end of the innovation unit, students retook the online digital literacy assessment and completed a unit project that was graded using the same rubric as
the pre-innovation unit project. Using this quantitative data, that is the data collected from the pre-innovation and post-innovation CEI, ODLA, and project scores, I used purposeful sampling to select eight students to conduct follow-up interviews to further help answer the research questions.

The findings from this study were derived from both the quantitative data gathered from the pre-innovation and post-innovation CEI instrument, the ODLA instrument, the project rubric, and data gathered from the interviews. This data was used to answer the research questions and to demonstrate the potential academic gains students are capable of when a librarian and an academic teacher collaborate on extended projects. Chapter Four provides the analysis and findings of this study and is divided into three sections. The first section involves the presentation and analysis of the quantitative data that came from the three separate sets of pre-innovation and post-innovation sources, namely the Classroom Engagement Inventory (CEI), the Online Digital Literacy Assessment (ODLA), and the social studies project rubric scores. The second section of this chapter describes the collection and analysis of the qualitative data gathered for this study which were derived from eight semi-structured interviews. The third and final section of this chapter is a discussion of the combined quantitative and qualitative findings of this study.

Quantitative Data Analysis and Findings

This section describes the analysis and findings for the quantitative data collected for this study. This data was gathered using three separate instruments which include the 1) Classroom Engagement Inventory, 2) the Online Digital Literacy Assessment adapted from the TRAILS digital literacy assessments (Kent State University, 2019), and 3) the
Social Studies Project Rubric. Each of these three instruments were used twice. First they were used during the pre-innovation unit and then once again at or near the end of the innovation unit.

**Classroom Engagement Inventory (CEI)**

*Description and Reliability*

The Classroom Engagement Inventory (CEI) used for this study was an online questionnaire adapted from the Classroom Engagement Instrument (CEI) created and validated by Wang et al. (2014) to investigate student’s emotional, behavioral, and cognitive engagement in a classroom setting. Dr. Wang’s instrument contained 24 questions that were designed to gage students’ engagement in five separate domains. The first is Affective Engagement (AE) described as “experiencing enjoyment or interest in the learning activities” (Wang et al., 2014, p. 531). The second is Behavioral Engagement Compliance (BEC) described by Wang, Bergin, and Begin (2014) as “tries hard and pays attention” and is “due to external pressure” (p.531). The third is Behavioral Engagement Effort (BEE) which is described as “effortful class participation” (Wang et al., 2014, p. 530) where students intentionally share in classroom activities like whole group discussions and classroom question and answer sessions. The fourth is Cognitive Engagement (CE) described as “mental effort, such as meaningful processing, strategy use, concentration, and metacognition” (Wang et al., 2014, p. 518). The fifth domain is Disengagement (DE) where the student is not affectively, behaviorally, or cognitively engaged in classroom activities or academic materials (Wang et al., 2014). According to Wang, Bergin, and Bergin (2014) the “internal consistency, calculated as Mc-Donald’s omega, of each of the five engagement factors ranged from .82 to.90” (2014, p. 532).
Further, the CEI developed by Wang, Bergin, and Bergin has been validated and used in additional studies related to student engagement (Cummings, 2020; Manzano-León et al., 2021), with Manzano-León et al. (2021) specifically reporting that “the Cronbach alpha values were higher than 0.70 in the subscales” (p. 1011).

The CEI used for this study was adapted from Wang, Bergin, and Bergin’s (2014) in order to account for the subject being taught and the age of the students and assessed if participating students who are taught social studies along with digital literacy skills felt more engaged with the content. Using the survey, students rated their level of agreement on 23 statements. Examples of these statements are (1) when I work on this social studies unit, I feel excited, (2) when I am working on this social studies unit, I feel curious about this civilization and I want to learn more, (3) during this social studies unit I have gotten really involved in classroom activities. The levels of agreement were 1 meaning “never,” 2 meaning “rarely,” 3 meaning “sometimes,” 4 meaning “most of the time,” and 5 meaning “always.” For this research study, one of the questions from the original 24-item Classroom Engagement Instrument was removed due to concerns over students’ implicating themselves for disobedience. Specifically, Question 2 of the original, “In THIS social studies class, I pretend like I am working” was removed. This resulted in a 23-question instrument. Furthermore, two of the questions were reverse coded on the original CEI and were therefore left reverse coded on the CEI used for this study. These two items were Item 9. In THIS social studies class, I am "zoned out," not really thinking or doing class work, and item 12 “In THIS social studies class, I let my mind wander to other things. Table 4.1 details the CEI subscales and questions that relate to each. See
Appendix C for the full questionnaire administered to student participants during the pre-innovation unit and during the innovation unit.

Table 4.1

Subscales for Pre-innovation and post-innovation CEI

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE - Affective Engagement</td>
<td>2, 3, 10, 15, 20</td>
</tr>
<tr>
<td>BEC - Behavioral Engagement Compliance</td>
<td>6, 11, 19</td>
</tr>
<tr>
<td>BEE - Behavioral Engagement Effort</td>
<td>1, 4, 5, 14, 18</td>
</tr>
<tr>
<td>CE - Cognitive Engagement</td>
<td>7, 8, 13, 16, 17, 21, 22, 23</td>
</tr>
<tr>
<td>DE - Disengagement</td>
<td>9, 12</td>
</tr>
</tbody>
</table>

The adapted CEI was administered to students using a Google Form that was linked through the Google Classroom created for this study and shared with the classroom teacher. Respondents received the pre-innovation survey near the end of the pre-innovation unit in early February of 2022 and then again near the end of the innovation unit in mid to late March of 2022. In total, 47 students completed both the pre-innovation and post-innovation CEI surveys. The Google Forms that were used for the pre-innovation and post-innovation CEI have the ability of recording the responses in a Google Sheets document. Once all the responses were recorded in these Google Sheets documents, I downloaded the data to Excel and converted the responses to numerical data. The responses for the reverse coded CEI questions 9 and 12 were coded as Always = 1, Most of the time = 2, Sometimes = 3, Rarely = 4, and Never = 5. For all other question (1-8, 10-11, 13-23) responses were codes as Always = 5, Most of the time = 4, Sometimes = 3, Rarely = 2, and Never = 1.
After converting all CEI responses to numbers, duplicate responses by students in each homeroom for both the pre-innovation and post-innovation units were removed. One student did not take the pretest but did take the posttest. I removed the CEI posttest data collected on this student. Then, once all conversions were made, I combined all the data into one document/spreadsheet with students listed aphetically by the teacher. From this point the data was prepared for quantitative analysis.

The subscales for the CEI were analyzed for internal consistency which is “the degree to which sets of items on an instrument behave the same way… quantified by Cronbach’s alpha (α) value that ranges between 0 and 1 with optimal values ranging between .7 and .9 (Creswell & Creswell, 2018, p. 154). Below, Table 4.2 details the Cronbach’s α reliability analysis for the CEI data collected for this study.

Table 4.2

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Items</th>
<th>Pre-Innovation α</th>
<th>Post-Innovation α</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE - Affective</td>
<td>2, 3, 10, 15, 20</td>
<td>.935</td>
<td>.928</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEC - Behavioral</td>
<td>6, 11, 19</td>
<td>.940</td>
<td>.794</td>
</tr>
<tr>
<td>Engagement Compliance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEE - Behavioral</td>
<td>1, 4, 5, 14, 18</td>
<td>.893</td>
<td>.597</td>
</tr>
<tr>
<td>Engagement Effort</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE - Cognitive</td>
<td>7, 8, 13, 16, 17, 21, 22, 23</td>
<td>.934</td>
<td>.879</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE - Disengagement</td>
<td>9, 12</td>
<td>.712</td>
<td>.830</td>
</tr>
<tr>
<td>All</td>
<td>All</td>
<td>.963</td>
<td>.903</td>
</tr>
</tbody>
</table>

Overall, the pre-innovation and post-innovation Cronbach’s α was α = .963 and α = .903 respectively indicating a “high degree of internal consistency” (Creswell & Creswell, 2018, p. 154). However, it must be pointed out that the reliability analysis for
the innovation CEI items relating to students’ effortful classroom participation, subscale BEE, was α=.597 indicating that these questions had low “intercorrelations among responses” (Adams & Lawrence, 2019, p. 79).

**CEI Findings**

Descriptive statistical analysis was used to analyze data collected from the pre-innovation and post-innovation CEI scores. According to Mertler (2020), “descriptive statistics allow researchers to summarize, organize, and simplify data” (p. 12). When descriptive statistical analysis was applied to the data, participants’ Affective Engagement (AE, “experiencing enjoyment or interest in the learning activities” [Wang et al., 2014, p. 531]) improved moderately (M = 3.034, SD = 1.343 to M = 4.123, SD = 1.053). Likewise, for the subscale Behavioral Engagement Compliance (BEC, “tries hard and pays attention” [Wang et al., 2014, p. 531]) an improvement was also indicated through analysis (M = 3.163, SD = 1.475 to M = 4.270, SD = .809). Participants scores for Behavioral Engagement Effort (BEE, “effortful class participation” [Wang et al., 2014, p. 530]) and Cognitive Engagement (CE, “mental effort” [Wang et al., 2014, p. 518]) both improved modestly as well (M = 3.043, SD = 1.250 to M = 4.119, SD = .7048 and M = 3.008, SD = 1.242 to M = 4.180, SD = .868, respectively). Disengagement (DE) was a reversely coded construct. After the reverse coding, the result showed a decrease in student disengagement (M = 2.926, SD = 1.137, to M = 3.138, SD = 1.326). Finally, when all subsets for the CEI were combined data analysis indicated that students did experience overall improved classroom engagement during the innovation unit (M = 3.033, SD = 1.110 to M = 4.074, SD = .662). Table 4.3 provides the mean and standard deviation for the pre-innovation and post-innovation scores of the CEI.
Table 4.3

Descriptive Statistical Analysis for Pre- and Post-Innovation CEI

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Pre-Innovation M</th>
<th>SD</th>
<th>Post-Innovation M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE - Affective Engagement</td>
<td>3.034</td>
<td>1.343</td>
<td>4.123</td>
<td>1.053</td>
</tr>
<tr>
<td>BEC - Behavioral Engagement Compliance</td>
<td>3.163</td>
<td>1.475</td>
<td>4.270</td>
<td>.809</td>
</tr>
<tr>
<td>BEE - Behavioral Engagement Effort</td>
<td>3.043</td>
<td>1.250</td>
<td>4.119</td>
<td>.704</td>
</tr>
<tr>
<td>CE - Cognitive Engagement</td>
<td>3.008</td>
<td>1.242</td>
<td>4.180</td>
<td>.868</td>
</tr>
<tr>
<td>DE - Disengagement*</td>
<td>2.926</td>
<td>1.137</td>
<td>3.138</td>
<td>1.325</td>
</tr>
<tr>
<td>ALL</td>
<td>3.033</td>
<td>1.110</td>
<td>4.074</td>
<td>.662</td>
</tr>
</tbody>
</table>

* The mean score for disengagement is reversely coded.

Then inferential statistics were used to investigate whether the change in students’ engagement was statistically significant. First, a Shapiro Wilk Test was performed on the data to test for normality (Taeger & Kuhnt, 2014). The Shapiro Wilk Test for the subscales Affective Engagement and Behavioral Engagement Compliance, as well as the overall combined significance was p < .001. The distribution for the subscale Behavioral Engagement Effort was p = .011, and the distribution for the subscale for Cognitive Engagement was p = .002. Finally, the revers coded subscale Disengagement was p = .064. Table 4.4 outlines the results of the Shapiro Wilk Test was performed for normality.

Table 4.4

Shapiro Wilk Test for Normality for CEI

<table>
<thead>
<tr>
<th>Difference in Subscales</th>
<th>w</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE - Affective Engagement</td>
<td>.896</td>
<td>47</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>BEC - Behavioral Engagement Compliance</td>
<td>.897</td>
<td>47</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Because most of the subscales were not normal distribution (p < .05), a Wilcoxon Signed Rank test (non-parametric analysis) was run to determine if there was a difference in the classroom engagement between the units (Adams & Lawrence, 2019; Taeger & Kuhnt, 2014). The Wilcoxon Signed Rank test results for CEI indicated that participants’ improvement in AE, BEC, BEE, CE, and overall engagement was statistically significant (p < .001), but the change in DE (p = .309) was not significant. Table 4.5 outlines the results for the Wilcoxon Signed Rank test performed for the Classroom Engagement Inventory.

Table 4.5

Wilcoxon Signed Rank Test Results for CEI

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Median Pre-innovation</th>
<th>Median Post-innovation</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE - Affective Engagement</td>
<td>2.80</td>
<td>4.60</td>
<td>-4.72</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>BEC - Behavioral Engagement Compliance</td>
<td>2.67</td>
<td>4.67</td>
<td>-3.84</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>BEE - Behavioral Engagement Effort</td>
<td>2.80</td>
<td>4.40</td>
<td>-4.14</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>CE - Cognitive Engagement</td>
<td>2.63</td>
<td>4.50</td>
<td>-4.47</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>DE - Disengagement</td>
<td>3.00</td>
<td>3.00</td>
<td>-1.02</td>
<td>.309</td>
</tr>
<tr>
<td>ALL</td>
<td>2.70</td>
<td>4.17</td>
<td>-4.873</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

*The mean score for disengagement is reversely coded.*
Online Digital Literacy Assessment

Description and Reliability

The Online Digital Literacy Assessment (ODLA) for this study was administered to participants near the end of their pre-innovation social studies unit in early February of 2022 and then again at the end of the co-taught innovation unit in mid-March of 2022. A total of 45 students took both the pre-innovation and post-innovation unit’s ODLA. The ODLA used for this study is an adaptation of the TRAILS (Tool for Real-Time Assessment of Information Literacy Skills) Digital Literacy Assessment developed by Kent State University. The TRAILS is a select-response test used to assess students’ information and digital literacy skills (Kent State University Libraries, 2019) whereby students select an answer to a test question from four potential answers (Kent State University, 2019c).

I adapted the 6th grade TRAILS assessment by selecting 64 of the original 90 assessment questions removing assessment question that did not pertain to online research or that did not relate to the study such as assessment questions concerning topic development in a research project because for this study students were given the topics of who, what, why, when, where, and how to focus their projects. Appendix D lists the questions for this study’s Online Digital Literacy Assessment with the answers marked. Further, each of the ODLA questions aligned with the ISTE standards and the South Carolina State Digital Literacy Standards (see pages 63 in Chapter 3 for standards alignment). Table 4.6 outlines the five different categories of digital literacy assessed by the adapted ODLA and the specific question numbers that correspond to the category.
**Table 4.6**

*Information/Digital Literacy Category and Corresponding Test Questions for ODLA*

<table>
<thead>
<tr>
<th>Category</th>
<th>Corresponding Test Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Developing topics for research:</td>
<td>1, 2, 3, 4, 5, 6, 39, 40</td>
</tr>
<tr>
<td>2) Identifying potential sources for research:</td>
<td>15, 16, 17, 35, 41, 42, 43</td>
</tr>
<tr>
<td>3) Developing, using, and revising search strategies during academic and personal research:</td>
<td>27, 28, 29, 30, 31, 32, 33, 44</td>
</tr>
<tr>
<td>4) Evaluate sources and information during academic and personal research:</td>
<td>7, 8, 9, 10, 11, 12, 13, 14, 34, 45, 46, 47</td>
</tr>
<tr>
<td>5) Using information responsibly, ethically, and legally:</td>
<td>18, 19, 20, 21, 22, 23, 24, 25, 26, 36, 37, 38, 48, 49, 50</td>
</tr>
</tbody>
</table>

The pre-innovation and post-innovation unit ODLA for this study was administered to students using Google Forms. The pre-innovation and post-innovation student responses from the Google Forms resulted in Google Sheets spreadsheets that were downloaded as Excel files. The correct answer to each question was coded as 1 and incorrect answers were coded as 0. The maximum score therefore was 50 and the minimum score was 0. Three of Mrs. Steinbeck’s students took the ODLA posttest twice. I kept the highest score.

**ODLA Findings**

In order to analyze the results from the pre-innovation and post-innovation ODLA a Kuder-Richardson Formula 20 reliability analysis described by Cleary and Linn (1968) as a “parallel-form correlation and internal consistency measure” (p. 1) was run on the data. The Kuder and Richardson Formula 20 showed that the pre-innovation test had acceptable reliability (Pretest: $\rho_{KR20} = 0.70$). However, the ODLA results taken at the end of the innovation unit were slightly lower than .70 (Posttest: $\rho_{KR20} = 0.68$) indicating that the internal consistency was less than the earlier test. Though less .70 it
can be argued that the innovation ODLA results ($\rho_{KR20} = 0.68$) are near enough to .70 to have acceptable reliability.

Following this, the student scores of the ODLA test were analyzed using descriptive statistics. For the subscale Developing Topics for Research the mean post-innovation scores improved ($M = .410$, $SD = .195$ from $M = .355$, $SD = .188$), while the subscale Identifying Potential Research Sources declined ($M = .283$, $SD = .145$ from $M = .349$, $SD = .181$). Though not declining, the subscale scores Developing, Using, and Revising Search Strategies During Academic and Personal Research improved only modestly ($M = .388$, $SD = .203$ from $M = .378$, $SD = .192$). Likewise, the subscale scores for Evaluate Sources and Information During Academic and Personal Research also improved modestly ($M = .391$, $SD = .185$ from $M = .338$, $SD = .155$). For the Using Information Responsibly, Ethically, and Legally sub-scale, the scores also showed an improvement ($M = .435$, $SD = .165$ from $M = .395$, $SD = .172$). When all the values for pre-innovation and post-innovation subset means were combined a modest improvement overall was revealed through analysis ($M = .391$, $SD = .113$ from $M = .365$, $SD = .118$). Table 4.7 provides details of the pre-and post-innovation descriptive statistics.

Table 4.7

_Descriptive Statistics for the Pre-and Post- Innovation ODLA_

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Pre-Innovation</th>
<th>Post-Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1) Developing topics for research</td>
<td>.355</td>
<td>.188</td>
</tr>
<tr>
<td>2) Identifying potential sources for research</td>
<td>.349</td>
<td>.181</td>
</tr>
<tr>
<td>3) Developing, using, and revising search strategies during academic</td>
<td>.378</td>
<td>.192</td>
</tr>
</tbody>
</table>
and personal research
4) Evaluate sources and information during academic and personal research
5) Using information responsibly, ethically, and legally

<table>
<thead>
<tr>
<th>Subscale</th>
<th>W</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Developing topics for research</td>
<td>.939</td>
<td>45</td>
<td>.020</td>
</tr>
<tr>
<td>2) Identifying potential sources for research</td>
<td>.944</td>
<td>45</td>
<td>.030</td>
</tr>
<tr>
<td>3) Developing, using, and revising search strategies during academic and personal research</td>
<td>.955</td>
<td>45</td>
<td>.079</td>
</tr>
<tr>
<td>4) Evaluate sources and information during academic and personal research</td>
<td>.949</td>
<td>45</td>
<td>.048</td>
</tr>
</tbody>
</table>

Following the descriptive statistical analysis, the data was analyzed using inferential statistical analysis. Similarly, the Shapiro Wilk Test was run on the data to test for normality (Taeger & Kuhnt, 2014). The p values for Developing Topics, Identifying Sources, Evaluating Sources, and Using Information Ethically, all when taken separately, did not show a normal distribution (p < .05). However, Developing Strategies for Research had a p-value greater than .05 as well as the overall total (p = .337) which indicated that the scores were normally distributed. Table 4.8 shows the p-values for the subscales within the ODLA.

**Table 4.8**

*Shapiro Wilk Test for Normality of ODLA*
Because the Shapiro Wilk Test indicated that the subscales were not normally distributed (p < .05), non-parametric analysis was necessary using the Wilcoxon Signed Rank test (Adams & Lawrence, 2019; Taeger & Kuhnt, 2014). The results from the Wilcoxon Signed Rank test indicated that the five subscales and the total scores for the ODLA had a p-value greater than .05, indicating that although students did improve some on their digital literacy skills, the change was not statistically significant. Table 4.9 illustrates the results of non-parametric analysis.

**Table 4.9**

*Wilcoxon Signed Rank Test for ODLA*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Median Pre</th>
<th>Median Post</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Developing topics for research</td>
<td>.380</td>
<td>.380</td>
<td>-1.62</td>
<td>.105</td>
</tr>
<tr>
<td>2) Identifying potential sources for research</td>
<td>.290</td>
<td>.290</td>
<td>-1.55</td>
<td>.121</td>
</tr>
<tr>
<td>3) Developing, using, and revising search strategies during academic and personal research</td>
<td>.380</td>
<td>.380</td>
<td>-.124</td>
<td>.902</td>
</tr>
<tr>
<td>4) Evaluate sources and information during academic and personal research</td>
<td>.330</td>
<td>.420</td>
<td>-1.90</td>
<td>.058</td>
</tr>
<tr>
<td>5) Using information responsibly, ethically, and legally</td>
<td>.400</td>
<td>.400</td>
<td>-1.54</td>
<td>.124</td>
</tr>
<tr>
<td>Total</td>
<td>.340</td>
<td>.380</td>
<td>-1.59</td>
<td>.111</td>
</tr>
</tbody>
</table>
Social Studies Project Rubric

Description

The social studies rubric for this study is one that was developed by the school districts’ curriculum coordinator and used across all 6th Grade social studies classes to assess student learning at the end of each social studies unit. The rubric was created so that regardless of the topics covered within the unit, the rubric still applies. The rubric addressed social studies content, appearance and mechanics, and digital literacy skills. One the rubric, social studies content had six categories with the total points available equaling 60% of the total. The appearance and mechanics section of the rubric had two components with appearance equaling 4% and mechanics equaling 10% for a total of 14% of the total grade. Finally, the digital literacy skills component had four categories which included finding appropriate sources (4%), creating proper citations (12%), creating a properly formatted references section (6%), and sharing the project or images of the project online (4%) all combined to be 26% of the student’s total grade.

In order to get the maximum score for social studies content, students had to thoroughly describe six separate components of an historical event, development, or topic including who was involved, what happened, why the event, development, or invention or innovation happened, when the event, development, or invention or innovation happened, where the event, development, or invention or innovation happened, and how the event, development, or invention or innovation changed the world. In addition to thoroughly describing the topic, students had to provide clearly labeled images to illustrate their descriptions. In order to receive the maximum number of points for appearance and mechanics student projects needed to be neat, attractive, and creative.
with no spelling, grammar, or punctuation errors. In order for the student to receive the maximum number of points for the digital literacy skills component of the rubric students needed to demonstrate their ability to use appropriate online sources, correctly cite all of their sources incorporating the images they used, create a thorough reference section that was correctly formatted, and share their project or images of their project online.

For the pre-innovation unit, the topics spanned early civilization to the fall of Roman Empire. Students were required to create a physical brochure to meet the rubric’s criteria. The unit’s time frame spanned late 2021 until the first part of February 2022. The innovation unit’s time frame spanned early February to mid-March of 2022. The innovation unit covered historical events from the fall of the Roman Empire through the Protestant Reformation and the Age of Enlightenment.

The summative unit projects completed for this innovation unit were online presentations using the Prezi platform. During this time, the Covid-19 pandemic had a large Omicron variant spike which severely affected school attendance by both students and teachers. For this reason, three students completed neither their pre-innovation projects nor their innovation projects, ten of the students involved in the study did not complete their pre-innovation projects and six students did not complete their innovation projects. Therefore, after the data from the pre-innovation and post-innovation project rubrics was cleaned, only 29 of the students’ projects were used for analysis.

The rubric used to grade these projects was the same as the pre-innovation project rubric. For the pre-innovation unit, the social studies teacher and I graded all the projects together. For the innovation unit, the social studies teacher helped to grade about five of the innovation projects to ensure inner rater reliability and then I graded the remaining
projects alone. A printed pre-innovation and post-innovation project rubric was filled out for each project that was turned in by the students so that as the projects were graded the scores were filled in on a paper rubric for each student.

**Social Studies Project Rubric Findings**

Once all the projects were graded, I transferred the scores for each student into an Excel workbook separating the subscales of social studies content, mechanics and appearance, and digital literacy skills. The maximum allowable score for Social Studies Content was 60, for Mechanics and Appearance it was 14, and for Digital Literacy Skills, 26. The subscale data as well as the overall score data was then analyzed using descriptive statistics. The mean social studies content score improved considerably (M=8.48, SD=3.21 to M=35.10, SD=21.06). Likewise, the mean Appearance and Mechanics score showed improvement (M = 1.90, SD = 1.63 to M=11.66, SD=4.33), as well as the mean Digital Literacy Skills score (M=1.38, SD = 1.15 to M=9.59, SD=9.07). With all the subscales combined, students total scores showed a significant increase after the innovation unit (M=11.79, SD=5.15 to M=56.03, SD=30.09). Table 4.10 details the descriptive statistics findings for the pre-innovation and post-innovation social studies project grades based on the common 6th Grade projects rubric used for the school.

**Table 4.10**

*Descriptive Statistics for Pre-innovation and Post-innovation Projects*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Pre-Innovation</th>
<th>Post-Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Social Studies Content</td>
<td>8.48</td>
<td>3.21</td>
</tr>
<tr>
<td>Appearance &amp; Mechanics</td>
<td>1.90</td>
<td>1.63</td>
</tr>
<tr>
<td>Digital Literacy Skills</td>
<td>1.38</td>
<td>1.14</td>
</tr>
<tr>
<td>Overall</td>
<td>11.79</td>
<td>5.18</td>
</tr>
</tbody>
</table>
A Shapiro Wilk Test was performed on students’ score differences between pre-innovation and post-innovation unit project to test for normality (Taeger & Kuhnt, 2014). Table 4.11 outlines the results of the Shapiro Wilk Test performed for normality.

**Table 4.11**

*Shapiro Wilk Test for Normality for Unit Projects*

<table>
<thead>
<tr>
<th>Subscales</th>
<th>w</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Studies Content</td>
<td>.929</td>
<td>29</td>
<td>.050</td>
</tr>
<tr>
<td>Appearance and Mechanics</td>
<td>.833</td>
<td>29</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Digital Literacy Skills</td>
<td>.739</td>
<td>29</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Overall</td>
<td>.951</td>
<td>29</td>
<td>.189</td>
</tr>
</tbody>
</table>

Because the Shapiro Wilk test did not show an overall normal distribution (p <.05), a Wilcoxon Signed Rank test was performed on the data to determine if there was a statistically significant difference between the students’ unit scores (Adams & Lawrence, 2019; Taeger & Kuhnt, 2014). Wilcoxon Signed Rank test results indicated that participants’ improvement in Social Studies Content, Appearance and Mechanics, Digital Literacy Skills, and Overall scores was statistically significant (p <.001). Table 4.12 outlines the results for the Wilcoxon Signed Rank test performed for the Social Studies Unit Project scores.

**Table 4.12**

*Wilcoxon Signed Rank Test Results for Unit Project Scores*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Median Pre-innovation</th>
<th>Median Post-innovation</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Studies Content</td>
<td>9.00</td>
<td>36.00</td>
<td>-4.46</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Appearance and Mechanics</td>
<td>2.00</td>
<td>14.00</td>
<td>-4.49</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Digital Literacy Skills</td>
<td>2.00</td>
<td>4.00</td>
<td>-4.55</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Overall</td>
<td>13.00</td>
<td>57.00</td>
<td>-4.57</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Qualitative Findings and Interpretations

The qualitative data for this study were derived from eight semi-structured interviews conducted with students after the innovation unit was complete. The interviews followed an interview protocol that was designed to address aspects of each of the three research questions that guided this study. The interviews were performed using Google Meet and were recorded using Google Meet’s captioning extension. After refining the resulting transcripts for accuracy, the interview data were used for qualitative analysis for this study. The following sections detail (a) the interview participant selection, (b) the data collection procedures and analysis, and (c) the qualitative findings.

Interview Participant Selection

The selection process for students to participate in the semi-structured interviews for this study was purposeful using a representative sample described by Tracy (2020) as a group whose “members are chosen specifically to replicate characteristics of the larger group” (p. 102). Students were selected using three criteria. First, I combined all participating students’ pre-innovation and post-innovation scores for all three qualitative instruments which included the ODLA, CEI and the unit project rubrics. After identifying students with the least combined gains, the central combined gains, and the top combined gains, I selected four students from each homeroom class from these scoring groups to represent the demographics of gender and race for all the students participating in the study. Table 4.11 outlines the student participant data for each of the eight students selected to participate in the semi-structured interviews conducted for qualitative data collection for this study.
Table 4.13

*Student Participant Data for Semi-Structured Interviews*

<table>
<thead>
<tr>
<th>Participant and Homeroom Group</th>
<th>Gender</th>
<th>Race</th>
<th>Combined ODLA, CEI, Project Score Gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casy (Mrs. Steinbeck)</td>
<td>Male</td>
<td>White</td>
<td>-2</td>
</tr>
<tr>
<td>Elisa (Mrs. Steinbeck)</td>
<td>Female</td>
<td>White</td>
<td>-1</td>
</tr>
<tr>
<td>Cathy (Mrs. Joad)</td>
<td>Female</td>
<td>African American</td>
<td>8</td>
</tr>
<tr>
<td>John (Mrs. Steinbeck)</td>
<td>Male</td>
<td>African American</td>
<td>54</td>
</tr>
<tr>
<td>Dora (Mrs. Joad)</td>
<td>Female</td>
<td>Hispanic</td>
<td>64</td>
</tr>
<tr>
<td>George (Mrs. Steinbeck)</td>
<td>Male</td>
<td>White</td>
<td>77</td>
</tr>
<tr>
<td>Rosa (Mrs. Joad)</td>
<td>Female</td>
<td>White</td>
<td>87</td>
</tr>
<tr>
<td>Pablo (Mrs. Joad)</td>
<td>Male</td>
<td>Hispanic</td>
<td>124</td>
</tr>
</tbody>
</table>

**Qualitative Data Analysis**

The sources of qualitative data were eight individual semi-structured interviews conducted with the participants selected from all the students who took part in this study. The interviews took place online using Google Meet and were recorded using Google Meet’s captioning extension which produced transcripts of the interview. After each interview, I downloaded the transcript and listened to the recorded interview several times while editing the transcript for accuracy. Once the transcripts were accurate, I uploaded the transcripts to the Delve Tool, which is a web-based software used for coding qualitative data. Then I proceeded to the first cycle of coding the qualitative data.
Inductive analysis was used to analyze the qualitative data for this study.

Inductive analysis as it is applied to this study is a process whereby the researcher, through several rounds of reading and rereading transcripts, develops short, descriptive codes for information that reveals itself through scrutiny. The researcher then uses these codes to uncover patterns within the codes. Once the patterns emerge, these are used to develop categories of information which then ultimately reveal themes that have emerged from the categories (Creswell & Creswell, 2018; Mertler, 2020; Saldaña, 2021; Tracy, 2020).

Saldaña (2021) defines a code as a "researcher-generated word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (p. 362). Researchers usually perform coding in several cycles including first-cycle and second-cycle methods. According to Saldaña (2021), first-cycle methods “are those processes that happen during the initial coding of data” (p. 88). Saldaña (2021) describes second-cycle coding as the act of analyzing these initial codes generated during the first rounds of coding and then “classifying, prioritizing, integrating, synthesizing, abstracting, [and] conceptualizing” (p. 89) them to form patterns which in turn helps to reveal themes that emerge from the data (Mertler, 2020; Saldaña, 2021).

For this study, I performed three rounds of first-cycle coding and then two rounds of second-cycle coding on the data. Throughout the entire qualitative data collection and analysis process, I kept comprehensive notes about each step, process, and decision that was made. The following section provides details regarding the first and second-cycle coding methods used to analyze the qualitative data collected for this study.
First-Cycle Methods

In order to conduct the first-cycle coding of the interview data, I created three projects within the Delve Tool which is a web-based software used for coding qualitative data. The projects were named for the type of first-cycle coding that were to be applied to each project. Then each of the eight transcripts were uploaded into each of the three projects. Using the Delve Tool, I used In Vivo, Initial, and Values, Attitudes, and Beliefs first-cycle coding methods to analyze the data.

In vivo coding. In vivo coding is “a word or short phrase from the actual language found in the qualitative data record” (Saldaña, 2021, p. 137). These codes are the words used by the interviewee and are, according to Saldaña (2021), “more likely to capture the meanings inherent in the people’s experience” (p. 138). I first used in vivo coding to analyze the transcripts in Delve. For this study in vivo coding allowed me to identify specific words and phrases that the students used to describe their experiences as students in both the single-teacher classroom and during a co-teaching class. Further, the actual words of the students were often far better at getting to the essence of what was being discussed at the moment. Figure 4.1 is an image of an in vivo code in Delve where the student’s words perfectly summed up what she was trying to say when she was asked if she enjoyed the co-teaching set-up. In all, there were 175 in vivo codes applied to the transcripts.

Figure 4.1 Example of In Vivo code in Delve Tool.
**Initial coding.** According to Saldaña (2021), initial coding is a method of coding that allows the researcher to “reflect deeply on the contents and nuances” (p.148) of the data by examining the relationships and differences between and within the information that has been collected. During the initial coding cycle, I looked closely at each transcript section and phrases not easily apparent with in vivo coding. One example of a code developed during the initial coding cycle was “faster paced with two teachers.” This became a thread that I noticed throughout several of the transcripts. One student, George, commented that “there's so much information about it that once y'all were actually done, my mind couldn't wander and I had to start processing it. No, I immediately had to start working.” Likewise, the statement “instead of one person just talking about the whole thing y’all could talk about it like really quickly back and forth instead of one person, one teacher, just talking about it like slowly” was also coded “faster paced with two teachers.” There were several such instances during initial coding where nuanced information within the transcripts became apparent. A total of 135 initial codes were applied to the transcripts.

**Values coding.** Values, Sentiments, and Beliefs was the third type of first-cycle coding method I used to analyze the qualitative data for this study. With this type of coding, transcript comments that reflect what a person feels, thinks, or believes about a situation or individual are coded (Saldaña, 2021). In many qualitative data analysis situations, the researcher needs to code the data in such a way as to label and distinguish between values, sentiments, and beliefs; however, Saldaña (2021) stated that “values coding does not necessarily have to code for all three or differentiate between them unless the study’s goals include determining participant motivation, agency, causation, or
ideology” (p.168). For this reason, I did not distinguish between the three but coded simply as values for this cycle of coding.

In order to perform values coding for this study, I revisited each transcript and examined each line of text searching for indications of how the students felt or what they believed and then coded their words with descriptions of these feelings. Examples of values codes developed during this cycle include the codes “likes social studies” and “social studies sometimes boring” which were applied to the same phrase by Rosa where she said, “I like social studies but sometimes it just gets a little boring.” Another example of a values code applied to the data for this study is “confidence with digital literacy” applied to Elisa’s phrase “Oh, like 10 out of 10. I’m so confident.” In all, a total of 239 values codes applied to the transcripts.

**Peer debriefing.** Throughout the first-cycle coding process, I met regularly with my co-advisor to discuss the codes that were applied to each transcript and for each type of coding. She made several suggestions including shortening some of the initial code lengths. For example, “can use tools in future lives” was shortened to “future benefits.” An additional suggestion that she made was to use brackets to fill in in vivo codes for clarity such as the code “the co-teaching was, it made it more funner” which was changed to “the co-teaching was, it made [social studies] more funner.” This suggestion helped immensely during second-cycle coding when the context of the code was removed.

**Transition to second-cycle coding.** Once all the first-round coding cycles were complete I downloaded each cycles’ codes from Delve into an Excel workbook with a sheet for in vivo, a sheet for initial coding, and a sheet for values coding. The Delve
downloads for these cycles included each actual code, the interviewee's initials, the 
*snippet* of the transcript for which the code was applied, and the code or codes themselves that were created. I made a second Excel workbook and placed all the codes into one spreadsheet. When I had all the codes on one sheet, I used Excel’s color-fill tool to assign different colors to very broad groups of related codes. Figure 4.2 illustrates the groupings used to separate the first-cycle codes by rough topics. Figure 4.3 shows an example of the broad group “Feelings about Technology.”

**Figure 4.2** Groupings used to separate the first-cycle codes by rough topic.

<table>
<thead>
<tr>
<th>Feelings about SS</th>
<th>Feelings about Technology</th>
<th>Feelings about Co-teaching and mixing DL w/ SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>How student Learns and retains information</td>
<td>Change in use of DL tools</td>
<td>Challenges and Confidence</td>
</tr>
<tr>
<td>Notes, ideas, and interesting quotes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4.3** Example of the broad group “Feelings about Technology.”

After all the codes had colors assigned to them based on their relationships to the groupings, I used the different colors to separate the codes into different pages in the Excel workbook and labeled the sheets according to the grouping. Figure 4.4 illustrates
the color filled codes with the separate page tabs for each grouping visible at the bottom of the workbook page.

**Figure 4.4 Example of the color-filled codes and Excel tabs groupings.**

Once the codes were separated into their broad groups, I deleted duplicate codes, removed the colors from each of the group pages in the Excel workbook, and printed the pages in black and white, stapling the broad grouping pages together. Figure 4.5 shows a portion of the challenges and confidence grouping before it was printed.
Figure 4.5 Example of codes before they were printed.

Second-Cycle Methods

Second-cycle coding involves a researcher judiciously examining the codes generated during the first-cycle coding process in order to “organize” and “synthesize” (Tracy, 2020, p.225) these codes into more conceptual groupings. Although there are several different methods for performing second-cycle coding (Saldaña, 2021; Tracy, 2020), I used pattern coding to begin organizing my data. Pattern coding, according to Saldaña (2021), is a way of grouping… [codes] into a smaller number of condensed” “segments of data” (p. 322) that relate to each other and can be organized and reorganized as patterns in the data as they become apparent. I chose to manually pattern code my data as this method provides more visibility of the codes than just an Excel spreadsheet on a computer screen and as Tracy (2020) points out, is considered “especially valuable among those new to qualitative analysis and for those who [are] attracted to physically interacting with empirical materials” (p. 216). Thus, in order to
begin pattern coding my data, I used scissors to cut out each first-cycle code that I had printed during the transitional phase between first and second cycle coding. In the beginning, I kept the cut-out codes in bundles according to their broad groupings. Figure 4.6 illustrates the stapled together broad groups and one group of pattern codes that had already been cut up.

Figure 4.6  Example of pattern code groups assembled and bundled.

Once all the codes were cut up, working on the surface top of two black chest freezers that live in my home-office, I began reading and arranging them into groups that seemed to establish patterns. At this point I started naming the pattern codes and writing these new code names on post-it notes to summarize the codes that they subsumed. I often rearranged and combined pattern groups until I arrived at more refined pattern codes. Figure 4.7 illustrates the first cycle codes being arranged into patterns with the pattern code names on post-it notes.
This first round of pattern coding yielded 76 pattern codes hand printed on post-it notes. I collected the post-it notes, carefully bundling their associated first cycle codes together, and typed each pattern code name into an Excel spreadsheet. I used the color fill tool in Excel to keep the pattern codes organized into their original broad groups but lightened the colors to make the sheet more printer friendly and to symbolically prepare the pattern codes for rearrangement. From here I created several possible categories in preparation for a meeting with my dissertation advisor. Figure 4.8 shows the printed pattern codes arranged in temporary categories.

**Figure 4.7 First-cycle codes sorted into named pattern codes.**

**Figure 4.8 Example of pattern codes arranged into temporary categories.**
I then met with my dissertation advisors who read over my pattern codes and initial potential categories to guide my category development. They had several suggestions for revising my pattern codes and creating categories. One example of a refinement that I made as a result of this peer-debriefing was that I had grouped “students comfortable using tech, students like tech, and technology a part of everyday life” into a category that included “technology gives access to more information,” and “tech allows to work and own pace.” After our meeting, I made two separate categories from the codes I had lumped into one. The categories I then created from my advisor's suggestions concerning students and technology became “students’ perceived benefits of technology” and “student perceptions and attitudes about technology.” Also, during this discussion with my dissertation advisor, potential themes were discussed as they began to emerge from my developing categories. My advisor recommended that I look across my pattern codes and initial categories in order to see similarities.

After this meeting with my advisor, I stepped away from my work for several days and then reviewed all 549 of my initial codes contained in Delve. I reviewed my research questions and revisited the spreadsheets I had used to create my pattern codes. This review resulted in my adding two additional pattern codes that I had initially removed as partial duplicates. These were “finding ‘kid friendly’ information was challenging,” and “overwhelmed with pace and amount of info from co-teaching.” With this new perspective that I gained from talking to my advisor, from distancing myself from the data for a few days, and from reviewing my research questions and original codes, I put aside the possible categories I had previously begun to develop and began creating categories anew. In order to do this, I arranged my pattern codes in a printable
word document and printed all 78, which included the two additional pattern codes I had arrived at after a second round of pattern coding. I cut out each pattern code with scissors and began to group them into more specific and pointed categories, labeling each with a post-it note, again working on the surface top of two black chest freezers that live in my home-office. Figure 4.9 shows the pattern codes being arranged into possible categories.

![Pattern codes arranged into possible categories.](image)

**Figure 4.9** Pattern codes arranged into possible categories.

Initially, I arrived at 14 categories. From here I created another Excel spread sheet where I typed the category name across the top of the page and then used the pattern codes that had been placed under the category labels on my flat surface to fill in under the header row for each category on my spread sheet. Figure 4.10 provides a view of a portion of the spreadsheet created for the categories and the pattern codes that they subsumed.
Figure 4.10 Partial view of the categories and pattern codes spreadsheet.

Here again, I stepped away from my work for a day. When I came back, I realized that I needed an additional category to accommodate what general classroom attributes might influence student engagement. I added this category and moved the appropriate pattern codes underneath in the Excel spreadsheet. As I arranged and reviewed each pattern code and category, I began to consider emerging themes. I tentatively created six themes that I thought represented and embodied the qualitative data gathered for this study. Figure 4.11 illustrates three of the six tentative themes I first arrived at.

<table>
<thead>
<tr>
<th>Content</th>
<th>Engagement During Co-Teaching</th>
<th>Challenges before DL Instruction</th>
<th>Negative perception co-teaching and DL</th>
</tr>
</thead>
<tbody>
<tr>
<td>More confident paraphrasing</td>
<td>Co-teaching was fun for students</td>
<td>Paraphrasing was challenging</td>
<td>One student was distributed disinterested at first because teachers</td>
</tr>
<tr>
<td>More confident with citing citations and avoiding plagiarism</td>
<td>Students had to immediately start working with co-teaching set-up</td>
<td>Reading relevant sources was challenging</td>
<td>One student overwhelmed by much information because co-teaching and replicating DL</td>
</tr>
<tr>
<td>Students liked having access to scholarly databases</td>
<td>Students asked more questions during co-teaching because availability of 2 teachers and more interest engagement in subject</td>
<td>Making citations was challenging finding information that was on their reading level was challenging</td>
<td></td>
</tr>
<tr>
<td>Creating citations, using citation generators and databases generated citations made citations easier</td>
<td>Students got excited about prospect of learning more &amp; liked flipped pace with more information</td>
<td>Students were relatively confident before but did not know that they were plagiarizing</td>
<td></td>
</tr>
<tr>
<td>Finding relevant, “old fashioned” information got easier w/ instruction</td>
<td>Students paid more attention to e-instruction and information because of co-teaching and DL; was f information platform i.e., digital format</td>
<td>Finding information that was on their reading level was challenging</td>
<td></td>
</tr>
<tr>
<td>Students like knowing about and having access to more websites</td>
<td>Students more challenged with 2 teachers</td>
<td>Student worried about plagiarism</td>
<td></td>
</tr>
<tr>
<td>How students feel more confident using scholarly databases</td>
<td>Students were not bored (or off task) during co-teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How students feel more confident paraphrasing (and using citations because of citation generators and image citations)</td>
<td>Students had more ideas about topics because of co-teaching and replicating DL &amp; it’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After DL instruction students are confident using DL tools</td>
<td>Class was faster paced with two teachers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.11 Example of my first attempt at developing themes.
At this point I met with my dissertation advisor who suggested that I review both my pattern codes and my categories. They gave several suggestions concerning combining my pattern codes which reduced the number from 78 to 44. One example of a new, more concise pattern code that was created from this suggestion was the combining of the pattern code “students happy and excited during co-teaching” and “co-teaching was fun for students” into “coteaching experience was enjoyable.” After the pattern codes were revised, I modified my categories and reduced the number to 12. I met again with my advisor, and we revisited the themes I had originally developed. With the help of both my advisor and my dissertation chair, ultimately three themes emerged from my qualitative data analysis.

**Presentation of Findings**

Three themes emerged from the qualitative data collected through the eight semi-structured interviews conducted for this study. Table 4.12 shows the individual themes along with the categories, examples of the pattern codes, and examples of the first-cycle codes from which the themes were derived.

**Table 4.14**

*Themes, Categories, Example Pattern Codes, and Example First-Cycle Codes.*

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Pattern Codes</th>
<th>First-Cycle Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students perceived bringing digital literacy into social studies content improved their awareness of and skills in digital literacy.</td>
<td>Lacked digital literacy skills before instruction</td>
<td>Unaware of inappropriate citations</td>
<td>“I never did that [citations] before, but now I know how to do it.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Challenged by lack of digital literacy skills</td>
<td>“finding appropriate sources challenging”</td>
</tr>
<tr>
<td>Awareness of the benefits of digital literacy</td>
<td>Helps with other classes and future jobs</td>
<td>“we can use for presentations, business, whatever”</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Students perceived that co-teaching supported their learning in the social studies class.</td>
<td>Engagement increased during co-teaching.</td>
<td>Inclusion of librarian increased interest and engagement</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“cool to hear you [librarian] teach”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I was more interested”</td>
<td></td>
</tr>
<tr>
<td>Exposed to broader range of perspectives and knowledge.</td>
<td>Resources of two teachers contribute to learning</td>
<td>“had more questions because I found out more”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher experiences and interactions created stimulating learning environment</td>
<td>“interesting to hear about different things from different teachers”</td>
<td></td>
</tr>
<tr>
<td>Exposed to broader range of perspectives and knowledge.</td>
<td>Resources of two teachers contribute to learning</td>
<td>“had more questions because I found out more”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher experiences and interactions created stimulating learning environment</td>
<td>“interesting to hear about different things from different teachers”</td>
<td></td>
</tr>
<tr>
<td>Pace with two teachers</td>
<td>Fast pace for two domains in 45 minutes</td>
<td>“there's so much information”</td>
<td></td>
</tr>
<tr>
<td>Combining digital literacy instruction and social studies made social studies more engaging.</td>
<td>Social studies more interesting because of digital literacy instruction</td>
<td>DL and SS work well together</td>
<td></td>
</tr>
<tr>
<td>Combining digital literacy instruction and social studies made social studies more engaging.</td>
<td>Social studies more interesting because of digital literacy instruction</td>
<td>“those subjects really work good together”</td>
<td></td>
</tr>
<tr>
<td>Combining digital literacy instruction and social studies made social studies more engaging.</td>
<td>Social studies more interesting because of digital literacy instruction</td>
<td>“two favorite things, it's just really fun to do”</td>
<td></td>
</tr>
<tr>
<td>Combining digital literacy instruction and social studies made social studies more engaging.</td>
<td>Social studies more interesting because of research and Prezi.</td>
<td>Paraphrasing made historical content more understandable/Research increased interest</td>
<td></td>
</tr>
<tr>
<td>Combining digital literacy instruction and social studies made social studies more engaging.</td>
<td>Social studies more interesting because of research and Prezi.</td>
<td>“It [paraphrasing] made me understand it more.”</td>
<td></td>
</tr>
<tr>
<td>Combining digital literacy instruction and social studies made social studies more engaging.</td>
<td>Social studies more interesting because of research and Prezi.</td>
<td>“access to more/better sources”</td>
<td></td>
</tr>
</tbody>
</table>
“I like it, because sometimes I get to research some new things.”

“Because social studies is so boring.”

“Social studies, I enjoy it, but sometimes all we get is boring.”

“I like learning about new people that were back in the old ages.”

“I really like social studies because it teaches us about what happened in the past and what, how much we changed.”

Theme 1: Students perceived bringing digital literacy into social studies content improved their awareness of and skills in digital literacy.

As discussed earlier in Chapter 2, the need to teach digital literacy skills to students in order to prepare them for future study and employment is exceptionally important (Bejaković & Mrnjavac, 2020; Karnoe et al., 2018; Martzoukou & Elliott, 2016). From the academic and educational practitioners’ point of view, much has been written about the benefits of digital literacy instruction (NCSL, 2017; P21, 2019), yet very little, if any, research has discussed young students’ perceptions of this need. Consequently, the first theme that qualitative analysis revealed was students perceived teaching digital literacy infused into social studies content improved their awareness of digital literacy and improved their digital literacy skills. The two categories that this
theme emerged from involved (a) students’ lack of digital literacy skills, and (b) students’ awareness of the benefits of digital literacy.

**Lacked Digital Literacy Skills Before Instruction**

This category was defined as students’ partial unawareness of digital literacy and their lack of possessing digital literacy skills before digital literacy was taught within the context of an academic class. From the interview data collected for this study, students indicated that before they were taught digital literacy they partially knew about plagiarism and were concerned about it but did not know how to properly cite sources. Further, students indicated that they relied heavily on basic Google searches and textbook materials to provide information for their research. After students were taught how to research using techniques to locate and verify accurate and reliable scholarly sources and then paraphrase and cite these sources, their digital literacy skills increased.

**Unaware of inappropriate citations.** During the interviews several students indicated that they had heard about plagiarism before the innovation unit, but they did not know how to avoid it by using citations. For instance, one student, George, stated that without digital literacy instruction and learning about proper citations “if I ever did a presentation for anything, I'd probably just copy and paste.” Additionally, Pablo said, “I never did [citations] before, but now I know how to do it.” Likewise, Rosa said, “now I know how to do a citation, and … I've learned more about plagiarism.” These student examples show that not only were students unaware of how to create a proper citation, but when they received digital literacy instruction, they felt that they could then apply these new skills.
Challenged by lack of digital literacy skills. During the interviews performed for this study it became apparent that students were not only concerned about creating proper citations but that other digital literacy skills were challenging to them as well. Finding appropriate sources was one of the main challenges students discussed. Several students talked about how, prior to the innovation unit, they had used general Google searches to find information for their projects and research reports. For example, Pablo in his interview stated that “I used to have to Google things but y'all taught me like the links [SC Discus].” Likewise, Elisa stated that before, “when we did like the, who, what, why, when and where stuff, I had trouble finding it.” Additionally, John mentioned several times during the interview that he had difficulties finding information that he could read and understand. When asked specifically if he had challenges before he stated, “Oh, yes, I had challenges of finding the right information that was kid friendly.” Through digital literacy instruction, this challenge was eased because students were taught how to use reading level limiters within scholarly databases to locate information written on their reading level.

Besides having trouble finding information written on a level that a sixth-grade student could read and understand, one student indicated that searches prior to instruction were often not reliable. When asked if there had been changes in his ability to find suitable information after learning digital literacy skills, Casy stated, “Yes. I can get more information to make sure it's not a site that's off whack, and not telling you real answers.” This was because during the innovation unit, students were taught how to look at the URLs of webpages to determine if the websites were maintained by education, government, or nonprofit organization and therefore more reliable. An additional
example of how learning digital literacy helped reduce students’ challenges in finding relevant information was seen when Elisa was asked if she felt more confident using digital literacy skills after instruction. She stated the following:

Oh, like 10 out of 10. I'm so confident of what I read because of the thing that they have at the end of it. Like, I know not .com because that can just be opinions, but to use like .org. Like, I know now to look at the very end.

Here, Elisa is describing using the URL to determine the possible purpose of a website as a means of discovering bias. In this statement, Elisa is relating how confident she is about using the URL of a website to decide if the site is from a company (.com), an organization (.org), a network (.net), a government institution (.gov), or an educational institution (.edu). If the site is from an organization or a government/educational institution then Elisa feels confident she can trust it.

In addition to students using general internet sources, students were also taught how to locate reliable and scholarly sources through SC Discus, a South Carolina State Library union database of safe and reliable online information sources. Elisa described how using this database helped her find better information saying, “when you helped me find new articles and like new websites to like, find new things, it was a lot easier.” All in all, data indicated that students felt like they had more and better information available to them after learning how to use digital literacy skills and tools. Moreover, the data collected from student interviews showed that students perceived that the digital literacy instruction they received during their innovation social studies unit made them more aware of how to avoid plagiarism, gave them the tools necessary to locate relevant and reliable information, and provided material written on their reading level.
Awareness of the Benefits of Digital Literacy

The second category for the first theme in this study was defined as students’ perceptions of the benefits that digital literacy instruction will have on their future classes and on their adult lives as productive and contributing members of society. Again, research based on students’ awareness and beliefs concerning the benefits of digital literacy instruction is scant. Nevertheless, the data collected for the qualitative portion of this study revealed that students recognize digital literacy instruction will help them be more successful now in other classes, as well as in their future studies and ultimately in their future jobs.

One example of a code that supported this category was related to how students were using and transferring their new digital literacy skills to other current classes. The code was “Have used DL resources in other classes and on other projects.” Here, the student Pablo, when speaking of Prezi, a new online collaborative tool he learned to use during the innovation unit, said “I use that tool now to make presentations for other stuff.” Other codes that contributed to this category dealt with what students perceived as the future benefits of digital literacy instruction. For example, John stated, “I think it will help really good because you introduced us into new websites and we have the ability to bookmark them and visit them anytime we want.” Likewise, when asked why his feelings had changed toward digital literacy instruction, John’s reply was “because you introduced me in our class to new websites that we can use for like presentations, business, whatever in our free time and work in our future lives.” An additional comment made by Cathy also illustrated this point when she stated simply, “[digital literacy] will help with projects.” These comments gathered from student interviews indicated that
students perceived receiving digital literacy instruction within the context of social studies would benefit them in the future, both academically and in their future lives.

**Summary**

Although a great deal of research has shown that digital literacy instruction is necessary for students (Bejaković & Mrnjavac, 2020; Karnoe et al., 2018; Martzoukou & Elliott, 2016), research on students’ perceptions of this instruction is scarce. Based on the qualitative data gathered for this study, the first theme identified that students perceive, understand, and recognize that digital literacy taught within the context of a social studies unit improved not only their awareness of the necessity for having good digital literacy skills but also improved their abilities using these skills. Prior to the innovation unit, students’ citation abilities were limited or, in some cases, they did not know that they were plagiarizing, but after instruction they felt more able to create and use citations. Likewise, before digital literacy instruction was infused into academic content, their ability to search for and identify relevant, reliable sources was limited. Qualitative data analysis revealed that after digital literacy instruction, students were more able to apply digital literacy skills and felt that they had benefited from the instruction. They believed that the benefits of digital literacy instruction would carry over into future classes and their adult lives.

**Theme 2: Students perceived that co-teaching supported their learning in the social studies class.**

The second theme that emerged from the qualitative analysis in this study was that students perceived co-teaching supported their learning in the social studies class. According to Kammer et al. (2021), numerous studies concerning the benefits of co-
teaching and having two teachers, specifically a content teacher and a librarian, in a classroom exist. In point of fact, research has shown that not only do students become more engaged in the content being taught but also their academic achievement increases (AASL, 2018b; King, 2019; Loertscher, 2000; Lowe, et al., 2020; Montiel-Overall & Grimes, 2013). However, for this study, Theme 2 concerns students’ perceptions of the benefits of coteaching, which has been the focus of fewer studies (Anwar et al., 2021). This limited research has shown that students perceive they are more engaged in classroom activities and content when there are two teachers (Anwar et al., 2021).

Consequently, the first category that Theme 2 was derived from, “engagement increased during co-teaching,” has research that supports the findings (AASL, 2018b; King, 2019; Loertscher, 2000; Lowe, et al., 2020; Montiel-Overall & Grimes, 2013). However, the last two categories that Theme 2 subsumed, “exposed to broader range of perspectives and knowledge” and “pace with two teachers,” appear to be unique to this study in that related research did not present itself. This theme is comprised of the following categories: (a) engagement increased during co-teaching, (b) exposed to broader range of perspectives and knowledge, and (c) pace with two teachers.

**Engagement Increased During Co-teaching**

The category “engagement increased during co-teaching” was defined as students reporting or discussing their affective engagement during the innovation unit compared to traditional classroom experiences because of the presence of the of two-teachers. As discussed in previous chapters, classroom engagement is the deep intellectual connection that occurs when students are thoroughly interested in the academic content which is identifiable by student behaviors such as questioning, sustained effort on challenging
projects, reviewing, reading ahead, and researching outside sources not only for academic reasons but personal ones as well (Greene, 2015; Lowe et al., 2020; Sadaf & Gezer, 2020; Sesmiyanti, 2016; Wallace-Spurgin, 2020). Research supports the category “engagement increased during co-teaching” in that studies have found students are more engaged when a teacher and a librarian collaborate and co-teach lessons (Maharaj, 2015; McPherson & Dubé, 2016). For example, Kammer et al. (2021), in their qualitative meta-analysis concerning teacher and librarian collaboration found “that student engagement increased as a result of the strategies implemented during the collaboration” (p. 13) in all the studies they analyzed. This category was derived from the pattern codes “inclusion of librarian increased interest” and “engagement and social studies more interesting because of co-teaching,” both of which, for the purposes of defining this category, accept that when a student is interested in a topic or situation they are more affectively engaged, defined by Wang et al. (2014) as “experiencing enjoyment or interest in the learning activities” (p. 531).

Inclusion of librarian increased interest and engagement. This pattern code was defined as instances where students specifically mentioned the librarian as a reason for why they were more interested and engaged in the content and classroom activities. For example, one student, Rosa, when asked about her experience during co-teaching stated, “I enjoyed it, when you teach. Because it was, it was cool to hear you teach and hear all that you came to tell us.” This student went on to say, “Hearing all you knew compared to like sometimes she wouldn't know some things you were talking about so it was like cool to hear some other things.” Another student, George, when asked about his experience during co-teaching and why he paid more attention in class stated, “Uh,
because mainly because of the stuff that you were teaching was pretty interesting, honestly.” Moreover, two out of eight students who participated in the interviews for this study claim specifically that their engagement increased during co-teaching not just because of two teachers, but specifically due to the inclusion of the librarian. However, one student, Cathy, indicated during her interview that the inclusion of an additional teacher, specifically the individual librarian, made the class more boring. In all, seven out of the eight students claimed that their engagement increased because of two teachers thus reinforcing the part of Theme 2 concerning how students perceived the presence of two teachers increased their engagement.

**Social studies more interesting because of co-teaching.** This pattern code was defined through data in which students expressed increased interest in social studies specifically because of co-teaching not the inclusion of digital literacy instruction. Qualitative data gleaned to form this pattern code were found throughout student interviews. One example was when John stated simply, “I was more interested in learning about social studies…because the co-teaching made it more funner.” When asked why he thought co-teaching made class fun, John replied, “Because it's two teachers that I know and they're both really good. I think that the co-teaching was excellent.” Another example was seen when Dora said, “Well, I've paid more attention to social studies when we were doing social studies in class. Um, um, because [co-teaching] made it more interesting.” Additionally, when this student was asked to elaborate on this comment, she said, “I pay more attention, when I'm interested in it and I want to learn more.” This was an important statement because it linked paying attention to personal interest which spoke directly to Wang et al.’s (2014) description of Affective Engagement (AE) described as
“experiencing enjoyment or interest in the learning activities” (p. 531). Likewise, the student Casy connected learning with personal interest saying that “I remember [new information] like, if it's so interesting.” These examples illustrate that students found social studies as an academic subject more interesting because of co-teaching.

Exposed to Broader Range of Perspectives and Knowledge

This category was derived from qualitative data concerning how co-teaching provided students with the knowledge and ideas of two separate education professionals in one classroom. This category is supported by Montiel-Overall’s (2005) seminal work about librarian and teacher collaboration whereby the research shows students benefit because “each collaborator brings to the process their expertise in the subject content, knowledge of standards to be included in instruction, methodology, research process, writing process, etc.” (p. 15). Interview data showed that students recognized and enjoyed this broader range of perspectives and knowledge afforded them through co-teaching.

Resources of two teachers contribute to learning. The code “Resources of two teachers contribute to learning” is defined by qualitative data gathered from student interviews whereby students discussed their ideas about having two separate teachers available to help and teach them at the same time. One student, Pablo, when asked how he felt about the co-teaching unit replied that because there were two teachers “I had more questions about things because I found out more.” Another student, Elisa, commented that “I feel like when it was just Mrs. Steinbeck, I learned a lot less because she was trying to get everything done instead of asking questions.” Elisa expounded on this with the following statement:
I was learning more information that I really, really wanted to know. And like, um, so you would say something and then Mrs. Steinbeck would say another whole another thing. And I just learned a lot more.

Here Elisa was talking about how she was very interested in the topic that was being taught and how when each teacher provided information about that topic from a different perspective she felt like she learned more.

Likewise, Elisa, when asked how she felt about co-teaching she replied that “Um, it was good, because I got help from two different people and two different perspectives.” Another student, John, when asked if he liked the co-teaching set up replied, “yes” because with “co-teaching, you had the ability of two teachers.” Another example is when Dora, when asked if she like the co-teaching setup replied, “yes, pretty good because I got help from both of you.” These comments directly addressed the fact that students felt having two teachers exposed them to a broader range of knowledge.

**Teacher experiences and interactions created stimulating learning environment.** This code is defined by comments students made concerning how the interaction between two teachers from two separate disciplines made a more interesting classroom environment. An example of how the interaction between two teachers was stimulating to students is seen when Elisa stated that it was “interesting to hear about different things from different teachers. Um, I liked it because y'all gave each other ideas of what to do like to teach in class.” Elisa went on to say the following:

When it was both y'all [teaching], you like we're talking, and she asked questions like a student, and I feel like that was just a lot more fun. Like it just got my attention and gave a lot more information.
Here Elisa was talking about how when the librarian was teaching about different resources like the Vatican website or visiting the palace of Versailles, she (the librarian) also shared her personal experiences about her physical visits to these places. Elisa was excited to hear the collaborating teacher ask questions about the places and the different experiences that these historical places offer both online and in person. Casy also commented that he enjoyed being in a class with two teachers working together. As evidence of this he said, “I liked it [the co-teaching set-up] because I learned a lot cuz both of y'all are working together… and both y'all teachers work really good together. I had more interest. So, I had more ideas to what y'all said.” These comments indicate that students enjoyed the interplay between the two teachers and found that these interactions increased interest in the subjects.

**Pace with Two Teachers**

This category was derived from pattern codes where students discussed how they enjoyed class and remained engaged with two teachers teaching because there was no down-time. During co-teaching, the pace of the class was considerably accelerated because two separate types of academic content were being presented to students during one forty-five-minute class period. To illustrate how the qualitative data revealed that the pace of the class kept students more engaged, one student, Elisa, when asked why she liked co-teaching made the following comment:

Because, um, it was two people talking about one whole thing. Like they could like talk about it like really quickly back and forth instead of one person, one teacher, just talking about it like slowly and trying to like handle the whole class
from not like zoning out. When it was just Mrs. Steinbeck people were like zoning off and it distracted me.

In this statement, Elisa was discussing how the classroom teacher would make a point and then the librarian would immediately follow up on that point with an illustration or demonstration of where more information could be found online. Elisa is saying that this set-up left no time for students to become disengaged. Likewise, another student, George, also indicated that the pace of the class kept him focused. He stated during co-teaching he experienced “less of the mind wandering the entire time that you two were teaching together because there's so much information about it that once you two were actually done, my mind couldn't wander. I immediately had to start working.” This need to immediately start working came from the fact that once class discussions and whole group teaching about both social studies and digital literacy ended students needed to complete their online work quickly before the end of class.

Although several students talked about how they enjoyed the accelerated pace of the class, one student, Pablo, reported being disconcerted in the beginning when the co-teaching innovation unit started. Pablo remarked that at first, he was overwhelmed by so much information being presented, but then he said, “I got used to it. I found out that it's okay….I got more focused because all the facts and stuff was interesting.” This statement showed that once Pablo got accustomed to co-teaching, he enjoyed the faster pace because it kept him engaged. On the other hand, another student, Cathy, never got accustomed to the co-teaching situation and indicated that the class was “boring” because of having two teachers, especially the librarian. However, Cathy did say, “social studies, it’s not like my favorite, but um, uh I don’t really understand social studies that much.”
This statement indicated that Cathy did not like or understand social studies initially even before co-teaching.

**Summary**

The second theme that emerged from the qualitative analysis for this study was students perceived that co-teaching supported their learning in the social studies class. Data revealed the inclusion of the librarian was a factor that contributed to their increased interest and engagement in class, which helped support their learning. In addition, students perceived social studies to be more interesting because of the presence of two teachers. Students also found that they were exposed to a broader range of perspectives and knowledge during co-teaching. Having two teachers provided a situation where students’ questions could be answered quickly, which students found increased their engagement. Furthermore, data revealed the interaction between the teachers from their unique disciplines made the classroom more interesting and stimulating. Finally, students indicated that the faster pace of a co-taught class kept them engaged and interested by not allowing time for their thoughts to wander.

**Theme 3: Combining digital literacy instruction and social studies made social studies more engaging.**

Research has shown that infusing digital literacy instruction into academic content helps students learn digital literacy skills and increases students’ overall academic success (Gretter & Yadav, 2016; Ward, 2019). Likewise, student engagement, which occurs when a student is deeply interested in academic content, has been linked through extensive research to students’ academic success (Fredericks et al., 2004; Greene, 2015; Sesmiyanti, 2016; Wallace-Spurgin, 2020). Little research, however, has been conducted
on how teaching digital literacy skills within a subject affects student engagement with that subject. This is an important concept because if teaching digital literacy within a subject makes that subject more interesting, then it follows that students will become more engaged in that subject, thus increasing academic success in that subject. For this reason, Theme 3 focused on qualitative data gathered concerning the effects that teaching digital literacy within social studies had on students’ interest in social studies and included the categories (a) social studies more interesting because of digital literacy instruction and (b) like social studies but sometimes it is boring.

**Social Studies More Interesting Because of Digital Literacy Instruction**

The category “social studies more interesting because of digital literacy instruction” was defined as students indicating social studies and digital literacy instruction work well together and that they were more interested in social studies because of the inclusion of the specific digital literacy skills that they were learning. The definition of this category came from pattern codes that were subsumed by it, which were “social studies and digital literacy instruction work well together” and “paraphrasing made historical content more understandable/research increased interest.” This category speaks directly to how mixing digital literacy instruction and social studies can increase student engagement.

**Social studies and digital literacy work well together.** This code was developed through qualitative data analysis that revealed students’ perceptions of combining digital literacy instruction and social studies instruction. During the interview process, students were asked to describe how they felt about combining the two subjects. Most students said that digital literacy and social studies work well together. For
example, John stated, “those subjects really work good together.” Likewise, when Elisa was asked about combining digital literacy and social studies, she replied, “so, it just combines some of my two favorite things and it's just really fun to do.” George commented that he thought social studies was more interesting because he was able to research a topic he was specifically interested in, Japanese Feudalism, and then do a presentation about it. He stated, “I think [digital literacy instruction] made [social studies] more interesting because if we were just learning about, um, social studies, then we probably wouldn't be doing a Prezi.” These statements indicated that students thought the subjects worked well together and learning digital literacy skills enhanced their interest in social studies.

**Paraphrasing made historical content more understandable/research increased interest.** This code subsumed codes relating to how learning and applying digital literacy skills increased students understanding of social studies topics and gave them access to more personally interesting information. For example, during her interview, Dora described how the process of paraphrasing information so she would not just copy and paste text helped her understand the social studies content better. She said, “when, um, the way you helped us learn it like paragraph - like paraphrasing - and like, put the words in our own words, it made me like understand it more and like be more interested in it.” Similarly, Pablo explained that he was more interested in social studies because he had learned how to use SC Discus to find more and better sources than just Google. He said, “I was more interested because I could find new things.” Based on the data collected from this study, the new knowledge of how to paraphrase text and how to
find more high-quality sources caused an increase in these students' interest in social studies.

**Likes Social Studies But Sometimes it is Boring**

This category was defined by examples within the qualitative data where students talked about liking social studies as an academic subject but that the class and content were sometimes boring. The pattern codes that were incorporated together to create this category were “like learning about people from other time periods” and “social studies sometimes boring.” This category emphasizes that although students claim they enjoy learning about history they sometimes become bored and thus disengaged when it is taught in isolation. Coupled with the previous category, “social studies more interesting because of digital literacy instruction,” this category shows why mixing digital literacy instruction and social studies can increase student engagement.

**Like learning about people from other time periods.** Comments students made during the interviews clearly indicated that they liked social studies. For example, Elisa said, “I really like social studies because it teaches us about like what happened in the past and what, how much we changed.” Similarly, Pablo stated in his interview, “I like it. I like doing, like learning about new people that were back in the old ages.” An additional example of how students claimed to like history came from Casy when he said, “I like social studies. I like because I like the history of different, like all the stuff, like medieval.” Another student, George, specifically talked about how he liked the Medieval Era. He explained that there was so much to learn from the time period, “The Middle Ages because of the how broad that is, it is like there's so many things.” John also talked about how he liked social studies saying, “I feel social studies is a really great subject
because kids can learn about like the Native Americans and other things and do fun projects.” All but one of the students, Cathy, who participated in the qualitative data collection for this study said that they enjoyed learning about history.

**Social studies sometimes boring.** This code was defined by instances where students talked about how social studies could become tedious. The one student, Cathy, out of eight who said she did not like social studies said the reason why was “because social studies is so boring.” In contrast, George talked about how although he really liked social studies, his mind often wandered. He said, “like, um, every now and then, like my mind, like I'm staring somewhere and it's like, I'm just stuck in my head. It's just me sitting there and like thinking about stuff.” An additional example was seen when Rosa said, “social studies, I enjoy it, but sometimes all we get is boring. But most of the time I enjoy it.” An additional example was found when the student Dora was asked if she enjoyed learning about social studies with digital literacy, she replied, “yes, it made social studies less boring because it was more interesting.” In short, qualitative data analysis revealed that although seven out of the eight of the students interviewed for this study enjoy social studies when it is taught in isolation, four out of eight said that it was sometimes boring.

**Summary**

The third theme that emerged through the qualitative analysis of data collected for this study found combining digital literacy instruction and social studies made social studies more engaging for students. Data revealed that students feel digital literacy and social studies work well together. Furthermore, applying skills learned during digital literacy instruction made social studies more understandable and interesting. Data also
revealed that students enjoy learning about the past, but social studies class is sometimes unexciting. However, when digital literacy was infused into social studies content, social studies was more interesting and engaging to students.

**Chapter Summary**

This mixed methods action research study utilized qualitative and quantitative data to investigate the impact of co-teaching involving a school librarian and a social studies teacher on sixth-grade students’ summative unit projects, classroom engagement, and digital literacy skills. Quantitative data were collected using three instruments. The first was the Classroom Engagement Inventory administered to 47 students before the innovation unit and then during the innovation unit. The second quantitative instrument was the Online Digital Literacy Assessment administered to 45 students before the innovation unit and then after the innovation unit. The third instrument was the schools’ standard social studies unit project rubric which was used to grade 25 students’ pre-innovation projects and students’ innovation unit projects. When taken together, quantitative analysis revealed that students’ classroom engagement increased during the innovation unit, students scored higher on their post-innovation digital literacy assessments, and students social studies projects for the innovation unit were higher than the pre-innovation unit.

Qualitative data were collected through the analysis of eight student participant interviews. The qualitative analysis revealed three themes: (a) students perceived bringing digital literacy into social studies content improved their awareness of and skills in digital literacy, (b) students perceived that co-teaching supported their learning in the social studies class, and (c) combining digital literacy instruction and social studies made
social studies more engaging. The qualitative and quantitative findings were combined in
order to answer the research questions for this study.
CHAPTER 5

DISCUSSION, IMPLICATIONS, AND LIMITATIONS

The purpose of this mixed methods action research study was to investigate the impact of collaborative teaching involving a school librarian (i.e., the researcher) and a social studies teacher on sixth-grade students’ summative unit projects, classroom engagement, and digital literacy skills. Quantitative data were collected using three separate instruments prior to the innovation unit when the collaborating teacher was teaching alone. These three instruments were then used again at or near the end of the innovation unit when the school librarian and the collaborating teacher were co-teaching digital literacy skills infused into the social studies content. The first of these instruments, the CEI, gathered data concerning students’ classroom engagement during the pre-innovation unit and the again during the innovation unit. The second instrument, the ODLA, gathered data on students’ digital literacy skills before and after the innovation unit. Finally, the third quantitative instrument used for this study, the Social Studies Project Rubric, was the school designed social studies project rubric that was used to grade students’ end of unit projects for both the pre-innovation unit and then again for the innovation unit projects.

After all the quantitative data were collected from the CEI, ODLA, and the Social Studies Project Rubric, the students’ combined total gains from the above-described instruments were calculated and eight students were purposely selected to participate in semi-structured interviews that yielded the qualitative data for this study. The students’
pre-innovation and post-innovation scores from the classroom engagement survey, digital literacy skills test, their social studies project grades and the interview were analyzed to answer the following research questions: 1) How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects?, 2) What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?, and 3) What are the effects of co-teaching instruction that integrates digital literacy and social studies content on six-grade students’ level of digital literacy? This chapter combines the quantitative and qualitative findings from this study and draws connections with existing research within the following discussion, implications, and limitations sections.

**Discussion**

In order to answer the research questions, quantitative and qualitative findings from this study were combined. These findings were then connected to the larger body of previous research concerning the effects that co-teaching digital literacy skills infused into academic content has on students’ classroom engagement, digital literacy skills, and social studies projects. This study’s findings and the connecting research are based on the need for students to acquire digital literacy skills in order to prepare them for a future that is productive, safe, and rewarding. By infusing the instruction of digital literacy skills into academic content by means of co-teaching, this study aimed to discover possible academic benefits beyond increased competency with digital literacy skills. These possible benefits related directly to the three research questions that guided this study.
The discussion of the findings and related research are organized according to the research questions in the following section.

**Research Questions 1: How does co-teaching instruction that integrates digital literacy and social studies content influence sixth-grade students’ performance on social studies unit projects?**

Through the findings of this study, it was revealed that students performed better and made higher grades on their summative social studies unit projects when the unit combined digital literacy instruction infused into the content and the unit was taught collaboratively by a librarian and a social studies content teacher. The data that were analyzed to reveal this finding came from the Social Studies Project Rubric used across all 6th Grade social studies classes within the school district to assess student learning at the end of each social studies unit. The Social Studies Project Rubric has three components and applies a numerical grade to each. Students are graded on social studies content which has a total of 60 possible points, appearance and mechanics which has a total of 14 possible points, and digital literacy skills which has a total of 26 possible points. When all three component scores are added together the rubric has a total of 100 possible points. Pre-innovation and post-innovation unit project rubric scores were analyzed using descriptive and inferential statistics separating the three components, i.e., social studies content, appearance and mechanics, and digital literacy skills, into subscales, to determine if there was a change between the scores from the pre-innovation unit and the innovation unit.

Quantitative data analysis revealed that the social studies content scores for the pre-innovation projects were significantly lower than the mean content scores for the
innovation unit. Likewise, the appearance and mechanics scores for the pre-innovation project were also significantly lower than those for the innovation unit. Additionally, the digital literacy skills scores for the pre-innovation project were significantly lower than the post-innovation unit. With all the subscales combined, students’ total scores for the pre-innovation unit projects were significantly lower than their total score values for the post-innovation unit. These finding show that students’ performance on their innovation unit projects was significantly better than on their pre-innovation unit.

These quantitative findings can be explained through the qualitative data collected for this study in two ways. First, student engagement has been linked to increased student success (Perry & Steck, 2015). Both Themes 2 and 3 that emerged from the qualitative data analysis of this study indicated that students felt more engaged during the innovation unit compared to the pre-innovation unit. Theme 2 related to the fact that having two teachers increased engagement, while Theme 3 directly related to how mixing digital literacy instruction into social studies content made social studies more engaging. These two findings when combined indicate that students were more engaged which led to success on the content portion of the grading rubric.

The second way that the quantitative findings for this study can be explained through the qualitative data arises from Theme 1 of this study. Theme 1 involved students’ perceptions of the benefits of digital literacy instruction taught within the context of social studies in that they felt bringing digital literacy into social studies improved their awareness of digital literacy skills and the need to be digitally literate. Data revealed that students felt more able to apply digital literacy skills on the final project for the innovation unit because they had been taught how to use these skills. On
the project rubric, using digital literacy skills appropriately was worth a total of 26 points. Students lost most of these 26 points on the pre-innovation unit because they were not using appropriate sources, citing their sources, or because the citations were incorrectly done. The instruction during the innovation unit helped with this. For example, Pablo said that “before, I wasn't like doing all the stuff, but now I am more confident. I know what to do now.” Pablo was talking about using citations in this statement. When he was taught how to create and use citations his innovation project received full points for citations.

Taken together the quantitative data collected from this study illustrated that students’ scores on their post-innovation social studies projects were significantly higher while the qualitative data helped to explain the reason why, which was because the students were more engaged and had a better understanding of how to use digital literacy skills. These findings thus indicated that co-teaching instruction that integrates digital literacy and social studies content positively influenced sixth-grade students’ performance on social studies unit projects.

This study’s findings are consistent with those found in related literature in that studies have shown that students experience greater academic success when they are taught digital literacy skills and academic content together in a collaborative environment where a librarian and a content teacher co-teach (Gretter & Yadav, 2016; Latham et al., 2013; Lee et al., 2017; Lowe et al., 2020; Ward, 2019). However, this existing literature mostly focuses on students’ overall academic success not specifically unit project success. Nevertheless, Chu (2009) conducted a study that focused on students’ unit project success as a result of librarian and teacher collaboration. Chu’s (2009) research
produced similar findings to this study in that students were significantly more successful on their unit projects.

**Research Questions 2: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on student engagement in the social studies content?**

Through the findings of this research study, it was revealed that students report higher classroom engagement when they receive instruction that integrates digital literacy and social studies content taught collaboratively by a librarian and social studies content teacher. This study’s findings are connected to previous research concerning co-teaching between a teacher and a librarian on integrated lessons found in many works that support the American Library Association’s (2017, 2019) and the International Society for Technology in Education’s (2018) national and international standards. In point of fact, the studies by Maharaj (2015) and McPherson and Dubé (2016) revealed that students become more engaged and thus comprehend more of the information being taught when librarians and teachers co-teach. Likewise, additional studies not only link co-teaching between a teacher and a librarian on integrated lessons to student engagement but also these studies have shown that these types of teaching and learning environments contribute significantly to students’ greater overall academic success (AASL, 2018b; King, 2019; Loertscher, 2000; Lowe, et al., 2020; Montiel-Overall & Grimes, 2013).

For this study, however, the research questions were aimed not at students’ greater overall academic success but at increasing students’ success digital literacy skills and social studies learning through increased classroom engagement. The following
section includes the quantitative findings, the qualitative findings, and a discussion on how their combined analysis provides insight into students’ classroom engagement.

The quantitative data analyzed to answer Research Question 2 came from the Classroom Engagement Inventory (CEI) administered to students during the pre-innovation unit and then again during the innovation unit. The Classroom Engagement Inventory (CEI) was an online questionnaire designed to measure students’ engagement in five separate domains. These engagement domains are Affective Engagement (AE), Behavioral Engagement Compliance (BEC), Behavioral Engagement Effort (BEE), Cognitive Engagement (CE), and Disengagement (DE). Descriptive and inferential statistical analysis were used to analyze data collected from the pre-innovation and post-innovation CEI scores. When descriptive statistical analysis was applied to the data, students' pre-innovation mean scores for all subscales were lower than their innovation unit mean scores. This indicated that the co-taught unit with social studies and digital literacy skills combined improved students’ affective, cognitive, and behavioral engagement. These findings are consistent with the findings from related literature concerning student engagement and academic success when a teacher and a librarian co-teach integrated lessons (Kammer et al., 2021; King, 2019; Loertscher, 2000; Lowe, et al., 2020; Maharaj, 2015; McPherson & Dubé, 2016; Montiel-Overall & Grimes, 2013).

The qualitative data used to reveal the finding for Research Question 2 came from the analysis of eight semi-structured interviews that produced themes. Within Theme 2, i.e., students perceived that co-teaching supported their learning in the social studies class, numerous incidences occurred were students indicated that they knew that they were more engaged in the classroom activities and the subject matter because of the
presence specifically of the librarian and the co-teacher and how the two teachers’ working relationship created a more exciting and dynamic atmosphere. Consequently, Anwar et al. (2021) found similar results in their study revealing that students perceived they were more engaged in classroom activities and content when there were two teachers. Regardless of whether students perceive the benefits of co-teaching or just simply benefit from the practice of co-teaching, qualitative findings for this study indicated that students were more engaged because of the co-teaching set-up.

There were several factors that came to light concerning the reasons why having two teachers, specifically the librarian and the content teacher, working collaboratively increased student engagement during the innovation unit compared to traditional classroom experiences. First, data from this study revealed that students perceive the inclusion of the librarian as a factor that contributed to their increased interest and engagement in class. For example, George commented that the reason he was more engaged in the class was “mainly because of the stuff that you [the librarian] were teaching was interesting, honestly.” A second factor revealed within the data was that the subject of social studies was more engaging because of the co-teaching set up. A comment by the student John is as an example of this where he said, “I was more interested in learning about social studies… because the co-teaching made it more funner.” In essence, the inclusion of the librarian as the second teacher in a co-teaching set-up increased student engagement.

The reasons why students reported feeling more engaged in classroom activities and the content because of the co-teaching set-up are an important finding for this study in that few related research studies exists concerning specifically why co-teaching
increases student engagement in the content and classroom activities (Anwar, et al., 2021). To that end, this study, through qualitative data analysis, revealed that having been exposed to a broader range of perspectives and knowledge piqued students’ interest. For example, the student Pablo, when he was asked why he was more engaged during the innovation unit said, “because I had more questions about things because I found out more.” This finding was supported by Montiel-Overall’s (2005) research concerning how during co-teaching students benefit because they are exposed to broader range of perspectives and knowledge.

An additional reason students gave for being more engaged during the innovation unit was the interaction between the teachers from their unique disciplines’ perspectives which made the classroom more interesting and stimulating. One example of how a student explained this idea was when the student Elisa stated, the following:

It was interesting to hear about different things from different teachers. Um, I liked it because y'all gave each other ideas of what to do like to teach in class.… When it was both y'all, you like were talking, and she asked questions like a student, and I feel like that was just a lot more fun. Like it just got my attention and gave a lot more information.

This statement helped clarify that the reason why she was more engaged during the innovation unit was the interplay between two teachers from separate disciplines which made the classroom environment more stimulating.

The pace of the class during the innovation unit was another factor that came to light concerning why students felt more engaged in the content and classroom activities. Students reported that because they were having to learn the content from two subject
areas and from two teachers during one 45-minute class period, there was no time for them to become bored or disengaged. The student George gave an example of this with the following statement:

I had less of the mind wandering the entire time that you two were teaching together because there's so much information about it that once you two were actually done, my mind couldn't wander. I immediately had to start working.

Because of coteaching, students perceived that the pace of the class during the innovation unit was accelerated and that this faster pace kept them focused, engaged, and interested by not allowing them time for their thoughts to wander.

In addition to how co-teaching affects student engagement, the effects that mixing the two content areas have on student engagement also provided insight into how the innovation unit helped students experience overall increased engagement. As mentioned earlier, previous research has shown that combining digital literacy instruction with academic content helps students learn digital literacy skills and increases students’ overall academic success (Gretter & Yadav, 2016; Ward, 2019). Likewise, student engagement in academic content has been related to students’ academic success (Fredericks et al., 2004; Greene, 2015; Sesmiyanti, 2016; Wallace-Spurgin, 2020). However, existing research about how teaching digital literacy skills within a subject affects student engagement with that subject is limited. This is a significant shortcoming in the existing literature in that if teaching digital literacy within a subject makes that subject more interesting then it follows that students will become more engaged, and therefore ultimately more academically successful within that particular subject.

Consequently, this study did make the connection that the academic content (i.e., social
studies) was made more interesting and thus more engaging to students because of the inclusion of digital literacy instruction. These findings were revealed through the third theme that emerged from the qualitative data analysis showing that digital literacy instruction and social studies made social studies more engaging.

Several examples from the data provided evidence for this finding. One example is seen when the student George said he thought social studies was more interesting because he was able to apply digital literacy skills he was learning during the innovation unit to research and then create a presentation about a topic he was personally interested. His statement “I think [digital literacy instruction] made it more interesting because if we were just learning about um, social studies, then we probably wouldn't be doing a Prezi.” Likewise, learning how to paraphrase helped students become more engaged in social studies. Evidence of this was found when the student Dora stated: “When, um the way you helped us learn it like paragraph - like paraphrasing- and like, put the words in our own words, it made me like understand it more and like be more interested in it.” Another example of how learning digital literacy skills, specifically learning about finding appropriate, relevant, and reliable research sources, made social studies more interesting and engaging for students was seen when the student Pablo said he was more interested in social studies because he had learned how to use SC Discus to find more and better sources than just Google.

In order to fully address Research Question 2 both the quantitative findings from the Classroom Engagement Inventory and the qualitative findings from the student interviews needed to be merged. For this study, the quantitative data provided the degree to which student engagement increased during the innovation unit and the qualitative data
explained why the students were more engaged. Further, two different factors came into play when analyzing the data for this study. One factor was the effects on engagement that mixing the two subjects might have had on student engagement, and the other was the effects that having to two teachers might have had on engagement. As discussed earlier, related literature has shown that having a librarian and an academic teacher co-teach together increases classroom engagement (Maharaj, 2015; McPherson & Dubé, 2016), but why this is so needs exploration.

Through the merging of the qualitative and quantitative data collected in this study, findings not only show that students do, indeed, experience greater classroom engagement when they receive instruction that integrates digital literacy and social studies content taught collaboratively by a librarian and social studies content teacher, but also suggest the answer as to why this is so. Quantitative data from the CEI showed an increase in students’ classroom engagement during the innovation. Qualitative data revealed that not only did students experience increased classroom engagement but also revealed that the reason why they were more engaged had to do with the pace of the class, the dynamic interplay between the two teachers involved, the additional perspectives involved in having two teachers from two disciplines available, and the additional help and assistance they received. Further, it was revealed that digital literacy instruction increased students' engagement in the social studies content by providing students access to more interesting and engaging academic content. The findings for this study indeed suggest that students were more interested and engaged in social studies because digital literacy skills were being taught.
Research Questions 3: What are the effects of co-teaching instruction that integrates digital literacy and social studies content on six-grade students’ level of digital literacy?

The Online Digital Literacy Assessment (ODLA) is an instrument that was designed to yield quantitative data for this study. It was administered as a pre-test before the innovation unit and then again as a post-test at the end of the innovation unit. Students average scores increased on the ODLA following the innovation. Although the quantitative data analysis findings technically answered the research question, qualitative findings help to provide a more complete understanding of students’ digital literacy learning gains. The following section first describes the ODLA and the quantitative findings it produced and then examines how Theme 1, which emerged for the qualitative data analysis, relates to the quantitative findings.

The Online Digital Literacy Assessment (ODLA) for this study was an adaptation of the TRAILS (Tool for Real-Time Assessment of Information Literacy Skills) Digital Literacy Assessment developed by Kent State University (Kent State University Libraries, 2019). According to Kent State University (2019b), the TRAILS assessment has been used to assess the digital literacy skills of more than 2 million students. Further, according to numerous studies, the TRAILS provided researchers and librarians with a reliable tool that could be used to assess students’ digital literacy skills (Miller, 2016; Morriston, 2007; Salam, 2014; Spisak, 2018). The TRAILS and, therefore, the adapted ODLA used for this study was a select-response test used to assess students’ information and digital literacy skills within five domains which concern 1) developing topics for research, 2) identifying potential sources for research, 3) developing, using, and revising
search strategies during academic and personal research, 4) evaluate sources and information during academic and personal research, and 5) using information responsibly, ethically, and legally (Kent State Libraries, 2019).

Descriptive and inferential statistical analysis were performed on students’ pre-innovation and post-innovation ODLA scores after they had had digital literacy instruction that was infused into social studies content. The ODLA had five category subsets for digital literacy mastery. When all the values for pre-innovation and post-innovation subset means were combined the total post-innovation mean showed an increase, although modest ($M = .3911$, $SD = .11374$), in students’ scores when compared to the pre-innovation mean scores ($M = .3653$, $SD = .11889$). These findings revealed instruction that integrates digital literacy and social studies content taught collaboratively by a librarian and social studies content teacher helps to increase sixth-grade social studies students’ performance on the ODLA.

Although Research Question 3 was answered using quantitative data collected through the analysis of the ODLA, qualitative data analysis produced findings that relate to students’ digital literacy skills, as well. Indeed, Theme 1 from the qualitative data analyzed from students’ interviews uncovered that students perceived bringing digital literacy into social studies content improved their skills in digital literacy. Indeed, students recognize that having adequate digital literacy skills is important but find mastering them challenging. This finding concerning mastering the skills being challenging resounds throughout related literature (Crary, 2019; Dooley, 2016; Falloon, 2020; Shaw, 2017), and is the main reason why national and state education standards
have been established *requiring* digital literacy be taught by content teachers and librarians in order to address this condition (AASL, 2017; ISTE, 2017; SCDE, 2017).

The qualitative data gathered from this study illustrated that prior to the innovation unit, students lacked full awareness of digital literacy and how to apply the skills. For example, students recognized that their ability to use citations was poor or they had not known that they were had been plagiarizing. Further, their ability to search for and identify relevant, reliable sources was limited. Qualitative data analysis revealed that after digital literacy instruction, students were more able to use digital literacy skills and felt that they had benefited from the instruction. One student, Casy, expressed how he had made improvements because of digital literacy instruction citing his ODLA post-test gains as evidence stating: “when I first took the test that we had taken in the first part, I got a higher score by the other one.” Taken together, through the quantitative and qualitative data analysis provided by this study, the findings indicated that students perceived that teaching digital literacy skills infused into academic content improved their awareness of digital literacy and their digital literacy skills.

**Implications**

The implications that arose from this action research study are threefold in that they inform the practice of school librarianship as a whole, they inform my personal practice as an educator, and they help to inform further research. Consequently, this discussion of the implications for this study is divided into three sections. The first section involves implications for practice, the second includes personal implications, and the third section concerns implications for future research.
Implications for Practice

As mentioned throughout this document the purpose of this action research study was to investigate the impact of collaborative teaching involving a school librarian and a social studies teacher on sixth-grade students’ projects, classroom engagement, and digital literacy skills. Through the literature reviewed for this study it was found that students should be taught digital literacy so that they can effectively navigate all the digital information available to them (ALA, 2017, 2019; ED, 2017; Johnston, 2015; Wray & Mulvihill, 2018). Classroom teachers in South Carolina and indeed many other states are required to teach digital literacy skills in their regular academic classes (ISTE, 2018; SCDE, 2017), yet many of these teachers do not know what information and digital literacy involves or they do not understand the necessity and benefits of teaching these skills properly (Crary, 2019). Librarians understand this need and are trained to teach digital literacy through collaboration with classroom teachers (ALA, 2017; Davies-Hoffman, 2013; Dodson, 2020). Furthermore, when this collaboration does take place, students have greater digital literacy gains and perform better academically (Lowe et al., 2020). However, significant challenges exist that make it difficult for teacher and librarian coteaching and collaboration to occur (Gwyer, 2018; Kammer et al., 2021; Montiel-Overall, 2007; Witte et al., 2015). Research has shown that the remedy to these challenges is increased support from school level administrations (Phillips & Lee, 2019), shared planning times, and greater teacher awareness of how librarians can help (King, 2019; Mandrell, 2018; Montiel-Overall & Grimes, 2013; Spengler, 2015). So, in essence, the true purpose of this study was to provide evidence to teachers and administrations that when students are taught digital literacy skills within academic content and through the...
collaboration of the teacher and the librarian, students become more engaged in the academic content. When students become more engaged in the academic content they are more academically successful which in turn increases their standardized test scores which is one of the ultimate goals of most classroom teachers and school administrators (Gretter & Yadav, 2016; Latham et al., 2013; Lee et al., 2017; Lowe et al., 2020; Ward, 2019; Witte et al., 2015). In short, this study aimed to give librarians added impetus in their struggle to convince administrators and teachers to let librarians help.

Consequently, the findings from this study show that when a librarian collaborates with an academic content teacher and helps teach digital literacy skills within the context of that content, students learn more because they are more engaged with the content, and they learn more because of the skills that digital literacy instruction provides. These findings have implications that effect all school librarians because they help shore up the purpose of library standards that are present nationally and they add to existing literature concerning both digital literacy instruction and teacher librarian collaboration. By providing another study, one that not only found that students were more engaged in content, but also was able to give insight into why that increased engagement in the content might have occurred, this study has implications that might influence other librarians to push harder to make collaborative partnerships in their schools more of a reality.

School librarians in my district, in South Carolina, and across the nation have a difficult time convincing their teachers and administrators that librarians are trained to teach digital literacy through collaborative partnerships (Johnston, 2015; Luetkemeyer,
2017), and that the benefits far out way the complications. The findings from this study when added to that of other researchers can help show these benefits.

**Personal Implications**

The findings and indeed the journey to the findings for this action research study have several personal implications. The process of conducting research, my role as an educator within the broader community and my plans for further research, and finally my role and responsibility as the as the librarian in my school are all three part of the personal implications that will be discussed within this section.

**Process of Conducting Research**

Although through other academic pursuits I had conducted some research, it was never action research and it was never on this grand a scale. The process of conducting action research for this study has given me the knowledge and skills needed to continue forward as a practitioner researcher in my educational community. Further, this process of conducting a mixed methods study has taught me how to conduct truly scholarly quantitative and qualitative analysis, which were more complicated than I had imagined, and I had already imagined that both were difficult.

**Action research.** Choosing action research was a means of finding a solution to a problem that exists at my school. It was truly done for me by me to solve a problem that is unique to my personal situation (Mertler, 2020). Having learned the action research process through this study I am much more prepared to continue the cyclical process started with this research and I am prepared to confront other difficulties that are or become apparent in my professional settings. Likewise, I am now better prepared to assist my colleagues with their own research endeavors.
**Mixed methods study.** Because this was a mixed method research study I have learned how to combine data to provide a much clearer picture of findings. For example, if I had only used quantitative data to analyze students’ classroom engagement during my study I would never have found out the reasons why they were more engaged, such as how the dynamic interaction between the two teachers made class more interesting. Consequently, this was a significant finding for my study because in most other studies concerning collaboration between librarians and teachers the focus is on how co-teaching affects academic success (Maharaj, 2015; McPherson & Dubé, 2016), but not why, during collaborative efforts, students are more engaged. Realizing how important combining quantitative and qualitative data has had a significant impact on how I will conduct research in the future as I had mostly done quantitative research in the past.

**Qualitative data analysis.** As discussed earlier, I had had only a limited amount of experience gathering and analyzing qualitative data. This study has helped me to understand exactly how limited my previous experience was. Being able to have the guidance and expertise of other researchers throughout this process has helped me immensely. Learning about the Delve tool, coding, and developing themes the proper way will help me in my future research as well as help me guide others in my professional community who wish to conduct informal research.

All in all, besides learning how to combine data for mixed methods studies, this action research process has taught me how I can contribute further to the broader community through additional action research studies now that I understand the process. It also has provided me with ideas on how I can recreate and improve this study and continue the action research cycle.
Role as an Educator

As stated previously, now that I understand the process of action research I can and will continue to seek out problems within my professional community that can be solved through the reflective teaching and systematic inquiry that occurs during action research (Mertler, 2020). Further, librarians are in a unique position in that they are, in a sense, professional researchers. This fact, and the fact that librarians are also part of many decision-making teams within a school and district’s organization puts me in a position of truly being able to continue research that can not only positively affect my community but also the broader community of educators that deal with digital literacy, librarianship, and information technology.

My Role and Responsibility as the Librarian in My School

As mentioned throughout this document the purpose of this action research study was to investigate the impact of collaborative teaching involving a school librarian and a social studies teacher on sixth-grade students’ projects, classroom engagement, and digital literacy skills. This study was born of a need, a problem of practice, within my school were as the librarian at my school I found that teachers were not integrating digital literacy instruction into their lessons to meet the South Carolina Department of Education’s Digital Literacy Standards. Additionally, I found that these teachers did not know that I was a resource that could help them meet the standards required of them.

True to the definition of action research, my study aimed at solving this specific problem within my educational institution (Patton, 2002), where I was both the researcher and a participant in the study (Mertler, 2020). Furthermore, true to the purpose of action research, the outcome and findings of this research study will affect my personal future
practices as a professional and, I hope, the way digital literacy instruction will be provided to students at my school and in my district. In essence, the implications of this study have only strengthened my belief that collaboration between teachers and librarians needs desperately to be embraced so that students can benefit from digital literacy instruction that will help them succeed in school and then lead better and more productive lives. School librarians in my district, in South Carolina, and across the nation have a difficult time convincing their teachers and administrators that librarians are trained to teach digital literacy through collaborative partnerships (Johnston, 2015; Luetkemeyer, 2017), and that the benefits far out way the complications. The findings from this study when added to that of other researchers can help show these benefits.

**Implications for Future Research**

Rigorous action research by its very definition is a process that starts with a practical problem within a community and seeks to solve that problem through a series of cycles of research each building on the last in order to improve the findings and refine the process itself (Mertler, 2020). The action research study presented in this document is but the first cycle of hopefully more to come. The findings for this study were based on very specific data collection where a librarian and a social studies teacher worked together with 6th grade students during a spike in cases of the COVID-19 Omicron Variant which already was responsible for over 6 million deaths worldwide (Yang, J., et al., 2023).

Further, this study was conducted in a very small school in a very small and very rural school district in the midlands of South Carolina. The implications on further research just based on variations within the school are tremendous. For instance, what would be the outcome of research where a different academic subject was used, or what
might occur if a different age of student might be participating, finally, what might be the outcome if there were no sickness on a scale such as occurred during the Omicron spike. All of these variables make the need for future research very plain.

Even as the implications for more research conducted by this researcher are made clear, so are the implications for additional research by other practitioners made clear as well. Researchers from other areas of the state and nation might benefit from conducting similar studies. Likewise, students’ age groups and other subject areas might create an entirely different atmosphere in which to study the effects of co-teaching digital literacy instruction. Additionally, other researchers might consider using different instruments to measure engagement and digital literacy skills.

**Limitations**

Most research studies have limitations and this one is no exception. The nature of action research, the instrumentation used to collect data, and the researchers on subjectivities are just a few of the limitations that are present in this study. The most obvious limitation is found in the nature of action research itself. Although it may be possible to perform similar studies which were discussed in the previous section, this study is specific to my circumstances. In fact, as stated before, this study was performed by me for me to solve a problem in my school and with my students (Mertler, 2020), and as such is not generalizable (Creswell & Creswell, 2018).

Besides the limitations that come with this study being action research, the instruments that were used had signification limitations as well. First, the Classroom Engagement Inventory used for this study had only 23 question, yet many students rushed through it both times. I discovered this because two of the questions were reverse coded.
These two items were Item 9. In THIS social studies class, I am "zoned out," not really thinking or doing class work, and item 12 “In THIS social studies class, I let my mind wander to other things. Many students who had indicated that they were “always” engaged on all the other questions, also answered “always” to these questions as well, which is contradictory and skewed the results. Possible ways to remove this problem are to talk to students beforehand and tell them that they need to read the questions very carefully, reverse code considerably more than two questions, or remove the reverse coded questions altogether. However, I found that the reverse coding gave me a better sense of who was paying attention to the survey.

An additional limitation found within the instrumentation was the length of the Online Digital Literacy Assessment. The ODLA was 64 questions that took about 30 minutes for the students to get through if they carefully read and answered each question. However, many students got about halfway through and then started clicking random answers. When I asked them if this happened, most apologized but then said that the test was too long and boring. Again, this skewed the results. I therefore would recommend shortening the ODLA to 20 or 25 questions for future research.

Another limitation to the instruments used in this study is that the Social Studies Unit Project Rubric which was a district-created grading rubric that was not validated outside of the district and is designed purposely for the school district alone. Testing this rubric’s validity outside of the district but within the state, which has the same academic standards, is recommended. On a final note concerning the social studies projects and lessons, keeping digital artifacts and lesson plans from the units is recommended. For this study neither images of the day-to-day lesson plans nor examples and images of students
pre- or post-innovation projects were kept. Having these items would be enormously helpful for future research.

Besides the limitations caused by the instruments, the researcher’s participant bias and the novelty effect were perhaps both at play within this research study. As part of this being an action research study I am by definition a member of my school’s community (Mertler, 2020). Further, I am what Suwankhong and Liamputpong (2015) described as an indigenous insider, which means that I not only work in the school, but I also live in the community and am a member of the cultural and social structure. I have known many of the students that were participants in this study since they were babies, I have gone to church with them and their families, and I taught some of their parents. Their behavior and interest in class when I was co-teaching may have this been significantly affected by both participant bias and the novelty effect.

Although I am sure there are other limitations to this study, the final one that may have perhaps had the greatest effect of the findings and certainty had a huge impact on the research process is the COVID-19 pandemic. This research study process started mid-January of 2021 at the very height of the Omicron winter case spike. There were days when my school did not have enough students or teachers in the building to maintain normal operations. Many students that began this study were unable to finish their innovation unit projects, and many students were out of school for weeks and unable to turn in their pre-innovation projects. Furthermore, the sheer strangeness of the whole situation was disconcerting to the teachers and the students. The complexity of the situation caused a highly uneven experience for the teachers and students. In short this
research was performed under very abnormal circumstances which surely produced untold limitations.

**Closing Thoughts**

This findings for this action research study indicated that through collaborative teaching between a librarian and a social studies teacher students were more engaged in the social studies content, they scored higher on their social studies unit projects, and their digital literacy skills increased. In summary, I know that this study helped me become a better teacher and a better librarian. Further, I hope that these findings and my work will help other librarians push for more collaboration within their schools to help all students benefit from being digitally literate citizens.
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https://doi.org/10.1108/JD-10-2013-0128


https://doi.org/10.1177/1609406915621404


APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

Jeri Jeffcoat
School Address
Town, SC 29xxx
Re: Pro00117758

Dear Jeri Jeffcoat:

This is to certify that the research study Digital Literacy Integrated Into Academic Content was reviewed in accordance with 45 CFR 46.104(d)(1), the study received an exemption from Human Research Subject Regulations on 12/14/2021. No further action or Institutional Review Board (IRB) oversight is required, as long as the study remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research study could result in a reclassification of the study and further review by the IRB.

Because this study was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

All research related records are to be retained for at least three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Lisa Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager
APPENDIX B

SOCIAL STUDIES PROJECT RUBRIC

SOCIAL STUDIES PROJECT RUBRIC

Connecting Hemispheres
- I can explain the development of the Silk Road and Indian Ocean trade routes.
- I can analyze the influence of trade on the development of African empires.
- I can explain how the Black Death was a catalyst for change in the medieval world.
- I can explain the causes and effects of the Italian and Northern Renaissance.
- I can identify the main causes and effects of exploration.
- I can analyze the development of the African slave trade.
- I can create and support an argument in response to the inquiry question: What were the consequences of increased global connection and interactions?

Intellectual Revolutions and Political Philosophies
- I can define the characteristics of a revolution.
- I can describe how the Protestant Reformation challenged social, cultural, and political norms.
- I can compare absolute and constitutional governments.
- I can explain the relationship between the Scientific Revolution and the Enlightenment.
- I can create and support an argument in response to the inquiry question: how did new ways of thinking challenge traditional cultural and political norms?

Students will choose one of the above topics and then create a physical artifact such as a poster or diorama or use an online presentation tool (Prezi) to completely describe the event, development, or topic using the categories of Who, What, Why, When, Where, and How, to organize the project artifact or presentation. Each of the categories should have a paraphrased paragraph description and at least one image. The paraphrased paragraphs and images need to have the sources cited using an online book, one reliable website, one reliable online magazine, and one article found using a scholarly database (SC Discus) at least once within the whole project. This will entail at least six passage citations and six image citations. References page must be included.
<table>
<thead>
<tr>
<th>Social Studies Content</th>
<th>189</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who was involved?</strong></td>
<td>Individuals and/or groups involved are correctly identified with in-depth information about their lives and contributions/activities. Appropriate image(s) are included. At least 5+ sentences are used. (10-9)</td>
</tr>
<tr>
<td><strong>What happened?</strong></td>
<td>Development or critical incident clearly described in-depth with correct information about what happened and with an appropriate image(s). At least 5+ sentences are used. (10-9)</td>
</tr>
<tr>
<td><strong>Why did it happen?</strong></td>
<td>Why the development or critical incident happened is clearly explained in-depth with correct information about all causes/events that led up to new development or incident and with appropriate image(s). At least 5+ sentences are used. (10-9)</td>
</tr>
<tr>
<td><strong>When did it happen?</strong></td>
<td>Era including dates are clearly identified with in-depth information about what else was going on in other places if relevant or when era came before or after the event or development occurred. Appropriate image(s) and time line are included. At least 5 sentences are used. (10-9)</td>
</tr>
<tr>
<td><strong>Where did it happen?</strong></td>
<td>Location(s) clearly identified with correct information about the physical aspects of the area(s) and how these may have influenced the events involved in the critical incident or how these may have influenced the behavior(s) of the individual(s) involved. Appropriate image(s) and at least 5+ sentences are used. (10-9)</td>
</tr>
<tr>
<td><strong>How did it change the world?</strong></td>
<td>A complete description of how the event(s) that occurred, or the activities of the individual(s) involved changed history is correctly described.</td>
</tr>
</tbody>
</table>
and clearly provided with in-depth information about how these events or people affected posterity. Appropriate image(s) are included. At least 5 sentences are used. (10-9)
correctly and clearly provided with in-depth information about how these events or people affected posterity. Appropriate image(s) are included. Three or 4 sentences used. (8-7)
provided with information about how these events or people affected posterity. Appropriate image(s) are included. One or 2 sentences used. (6-5)
provided with 1 sentence used and has appropriate image(s). (4-3)
provided but has no appropriate image, or Information about how the event(s) that occurred, or the activities of the individual(s) involved changed history is not provided but has appropriate image(s). (2-1)

<table>
<thead>
<tr>
<th>Total Score for Social Studies Content</th>
<th>60</th>
</tr>
</thead>
</table>

### Appearance and Mechanics

<table>
<thead>
<tr>
<th>Appearance</th>
<th>The project is neat, attractive, and creative. (4)</th>
<th>The project has a few neatness issues but is attractive and creative. (3)</th>
<th>The project has several (4+) neatness issues but is attractive and creative. (2)</th>
<th>The project is not neat but is attractive and creative. (1)</th>
<th>The project is neither neat nor attractive and creative. (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanics</td>
<td>The project does not have any spelling, grammar, or punctuation errors. (10)</td>
<td>The project has less than 5 spelling, grammar, and punctuation errors. (9-6)</td>
<td>The project has 5 to 10 spelling, grammar, and punctuation errors. (5-3)</td>
<td>The project has 11-15 spelling, grammar, and punctuation errors. (2-1)</td>
<td>The project has more than 15 spelling, grammar, and punctuation errors. (0)</td>
</tr>
</tbody>
</table>

| Total Score for Mechanics | 14 |

### Digital Literacy Skills

<table>
<thead>
<tr>
<th>Appropriate Sources</th>
<th>At least one each online book, one reliable website, one reliable online magazine, and one article found using a scholarly database (SC Discus) was used in the project. (4)</th>
<th>One online book, one reliable website, one reliable online magazine, or one article found using a scholarly database was not used in the project. (3)</th>
<th>Two online source types (online book, reliable website, reliable online magazine, and/or article found using a scholarly database) were not used in the project. (2)</th>
<th>Three online source types (online book, reliable website, reliable online magazine, and/or article found using a scholarly database) were not used in the project. (1)</th>
<th>No online source types (online book, reliable website, reliable online magazine, and/or article found using a scholarly database) were not used in the project. (0)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Citations</th>
<th>Each of the six information sections (who, what, why, when, where, and how) is paraphrased using quotations sparingly and the information and image(s) have appropriate citations. (12)</th>
<th>Each of the six information sections is mostly paraphrased but more than 3 direct, cut and paste quotations are used. All the information and image(s) have appropriate citations. (11-9)</th>
<th>Each of the six information sections is paraphrased using quotations sparingly but some of the information and image(s) citations are wrong or missing. (8-5)</th>
<th>The six information sections are directly pasted from the source and some of the information and image(s) citations are wrong or missing (4-3)</th>
<th>The six information sections are directly pasted from the source and some or all of the image(s) citations are wrong or missing. (2-1)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>References</th>
<th>Reference section has been included and has a complete bibliography. (6)</th>
<th>Reference section has been included but has 1 or 2 references missing. (5-4)</th>
<th>Reference section has been included but has 3 or 4 references missing. (3-2)</th>
<th>Reference section has been included but has 5 or more references missing. (1)</th>
<th>No reference section has been included. (0)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Project Sharing</th>
<th>Student shared project with Mrs. Steinbeck, Mrs. Jeffcoat using Google Classroom Assignments “Turn in” page and with classmates using Google Classroom Stream. (4)</th>
<th>Student shared project with Mrs. Steinbeck and Mrs. Jeffcoat using Google Classroom Assignments “Turn in” page but not classmates using Google Stream. (3)</th>
<th>Student shared project with classmates using Google Stream but did not submit to (both or either) teachers using the Assignments “Turn in” page. (2-1)</th>
<th>Student did not share project. (0)</th>
<th></th>
</tr>
</thead>
</table>

| Total Score for Digital Literacy Skills | 26 |

| Overall Combined Score from Social Studies Content, Mechanics, and Digital Literacy Skills | 100 |

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APPENDIX C

CLASSROOM ENGAGEMENT INVENTORY

Social Studies CEI * Required

Email *
What is your name? *
Who is your homeroom teacher? *

Mark only one Circle.

○ Mrs. Steinbeck
○ Mrs. Joad

Instructions:
Please choose the answer that best fits your feelings about THIS class. Some questions will seem the same, but they are being asked in a little different way to make sure we really understand your opinion.

1) In THIS social studies class, I work with other students, and we learn from each other.

Mark only one Circle.
○ Never
○ Rarely
○ Sometimes
○ Most of the Time
○ Always

2) In THIS social studies class, I feel excited.

Mark only one Circle.
○ Never
○ Rarely
○ Sometimes
○ Most of the Time
○ Always

3) In THIS social studies class, I feel interested.

Mark only one Circle.
4) In THIS social studies class, I form new questions in my mind as I join in class activities.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

5) In THIS social studies class, I actively participate in class activities.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

6) In THIS social studies class, I listen very carefully.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

7) In THIS social studies class, I go back over things I don't understand.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

8) In THIS social studies class, I think deeply when I take quizzes and tests.

*Mark only one Circle.*
- Never
9) In THIS social studies class, I am "zoned out," not really thinking or doing class work.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

10) In THIS social studies class, I feel happy.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

11) In THIS social studies class, I pay attention to things I am supposed to remember.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

12) In THIS social studies class, I let my mind wander to other things.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

13) In THIS social studies class, I judge the quality of my ideas or work during class activities.

*Mark only one Circle.*
- Never
- Rarely
14) In THIS social studies class, I do not want to stop working at the end of class.

   *Mark only one Circle.*
   ○ Never
   ○ Rarely
   ○ Sometimes
   ○ Most of the Time
   ○ Always

15) In THIS social studies class, I feel proud.

   *Mark only one Circle.*
   ○ Never
   ○ Rarely
   ○ Sometimes
   ○ Most of the Time
   ○ Always

16) In THIS social studies class, I search for information from different places and think about how to put it together.

   *Mark only one Circle.*
   ○ Never
   ○ Rarely
   ○ Sometimes
   ○ Most of the Time
   ○ Always

17) In THIS social studies class, I ask myself some questions as I go along to make sure the work makes sense to me.

   *Mark only one Circle.*
   ○ Never
   ○ Rarely
   ○ Sometimes
   ○ Most of the Time
   ○ Always

18) In THIS social studies class, I get really involved in class activities.

   *Mark only one Circle.*
   ○ Never
   ○ Rarely
19) In THIS social studies class, I complete my assignments.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

20) In THIS social studies class, I feel amused (smile, laugh, have fun).

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

21) In THIS social studies class, I try to figure out the hard parts on my own.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

22) In THIS social studies class, if I make a mistake, I try to figure out where I went wrong.

*Mark only one Circle.*
- Never
- Rarely
- Sometimes
- Most of the Time
- Always

23) In THIS social studies class, if I am not sure about things, I check my book or other materials like charts and Google Classroom.

*Mark only one Circle.*
- Never
- Rarely
o Sometimes
o Most of the Time
o Always

Thank you for completing our survey!
APPENDIX D

ONLINE DIGITAL LITERACY ASSESSMENT

Online Digital Literacy Assessment

Directions: Read each question carefully and choose the best answer.

1. You need to research a holiday from a different country and create a handout about it for your final product. Which subtopic should be included in your handout?
   - Your favorite holiday
   - The origins of the holiday
   - The number of holidays observed in Spain
   - Santa Claus

2. Most report topics are too broad and must be narrowed. Which topic is the narrowest?
   - Asian literature
   - Japanese poetry
   - Haiku poetry
   - World literature

3. You must write a three-page report for class. Which topic would be the best choice for a three-page paper?
   - Animals
   - Science
   - Elephants
   - Mammals

4. Read the original topic and the revised topic. Decide if the revised topic is broader (less specific) or narrower (more specific) than the original topic.
   Initial topic: Describe what is needed to grow healthy plants.
   Revised topic: Describe the soil composition that works best to grow tomato plants.
   - Broader
   - Narrower

5. You are assigned a research project on animals. You need to narrow the topic. Which group below begins with the broadest topic and then moves to the narrowest topic at the end?
   - Mammals, wild cats, animals, lions
Animals, mammals, wild cats, lions
Lions, wild cats, animals, mammals
Animals, mammals, lions, wild cats

6. You have chosen music as your topic for a research project. This topic is too broad and needs to be narrowed. Which would make a more manageable topic for your research?
Billie Eilish
Rock and roll music
Music through the ages

7. It is important to determine if a website’s information is accurate. Which of the following would help you decide that the website’s information is accurate?
Words are misspelled
The sources of photographs and data are identified
Common sense tells you the information is false
Quotations are used but no sources are given

8. You need to find information about the planet Jupiter for a school project. Your teacher wants one of your sources to be a Web page. You have found several that may work, but you must evaluate them to make sure they are good sites. Using the choices below, select the question that will not help you evaluate the sites.
Who is the author of the information?
How many people use the site?
When was the site last updated?
Is the author an expert on the subject?

9. Which term means lack of bias or prejudice?
Coverage
Objectivity
Currency
Accuracy
Authority

10. The extent of the subject matter refers to:
Coverage
Objectivity
Currency
Accuracy
Authority

11. You have used a search engine to locate websites on the negative effects of drugs on teenagers. Below are some websites that your search retrieved. Read over the site descriptions and choose the one that would best meet your information need.
www.addictionscare.com – A 24-hour addiction hotline in your community
www.teendrugabuse.org – Describes how illegal drugs affect the teen brain
www.teenscenezeen.org – Explains how to say “no” to drugs at a party
www.teendrugabusers.us – Provides help for parents with troubled teens

12. The content of websites can change frequently. In order to make sure the information is current, you need to look for which of the following?
   ■ The date the site was created and the date information was updated
   ○ The date the information was updated and the organization sponsoring the website
   ○ The date you accessed the information and the date the site was created
   ○ The name of the author and the date you accessed the information

13. You are working on an assignment about the earthquake that hit Haiti in January 2010. You came across a quote attributed to Trenton Daniel of the Miami Herald. What would be the best resource to use to verify the authority of this quote?
   ■ Wikipedia
   ■ A newspaper and magazine database
   ○ An encyclopedia
   ○ A Google search

14. “The worst natural disaster the world has seen took place when an earthquake of 9.0 magnitude took place in the Indian Ocean. “This sentence is best described as:
   ○ Rumor
   ○ Fact
   ■ Opinion

15. You want to find out when and where the most recent earthquake took place. Which of these sources would have the most recent earthquake information?
   ○ Your science textbook
   ○ A current science magazine
   ○ The local newspaper
   ■ U.S. Geological Society earthquake website

16. Is this statement true or false? The Google search engine is an example of a fee-based resource.
   ○ True
   ■ False

17. Your science class is studying the solar system. You need to find a current article about the solar system for extra credit. Which database should you check first for a current article?
   ■ A magazine database
   ○ An encyclopedia database
   ○ A history database
   ○ A reference database
18. You used facts from a website for your poster. What facts about the website should be in your biography?
◯ Page numbers
◯ Picture names
● URL web addresses

19. Which is a case of plagiarism?
● Copying from a website
◯ Taking notes in your own words and citing your source
◯ Using your picture
◯ Writing a poem

20. Why is it important to create a Works Cited page after you have written your paper or completed your project?
◯ It provides a list of the page numbers for each of the quotes that you used in your paper.
● It shows where you found your information so that others can locate your sources.
◯ It completely protects you from being accused of plagiarism.

21. Your teacher wants you to create a library Web page to post on the school website, and you want to use graphics to enhance the look of the Web page. What source should you use to get these graphics?
◯ A graphics CD that belongs to your friend
◯ A graphic from a website that you copy and paste into your document
● A graphic from a website with free use or Creative Commons licensed graphics
◯ A graphic from a website that you use without asking permission from the author

22. While doing research, you find a sentence in a book or online database that you would like to include in your paper. According to the MLA Style Guide, what must you do with this information in order to correctly give credit to the author?
◯ Change the original words into your own words and include the author’s name.
● Place the information from the book in quotation marks and include the author’s name and page number.
◯ Write down the information just like it is in the book without the author’s name.
◯ Use synonyms for all of the words that you don’t understand.

23. Your friend tells you about a website where you can download all of the latest songs that you hear on the radio for free. If you use this website for this purpose, you will be violating which of the following?
◯ Fair use
◯ Right to privacy
● Copyright
◯ Freedom of information
24. Your teacher has assigned a report on dinosaurs. You have been interested in dinosaurs for a long time and know a great deal about them. You know so much, in fact, that you think that you can just write a report on dinosaurs without any research. What is the best way to complete your assignment?
● Find sources that confirm what you know and cite those.
〇 Go to an online database and generate a few citations to use.
〇 Cite Wikipedia as a source.
〇 Get a few books from the library about dinosaurs and cite those.

25. You want a copy of a song from your favorite band’s new CD. Which of these allows you to legally copy the song from the Internet?
● You find it on a website that says, “click here to download.”
〇 Your friend copies it from the Internet and gives it to you.
〇 You find it on the Internet at a social media page and copy it.
● The artist gives permission to copy the song on his/her website.

26. You used facts from an electronic book for your report. What do you include about the book in your works cited page?
〇 Title of book, author, publication date, and pages
〇 Publication date, title of book, electronic book, and author
● Author, title of book, name of publisher, and publication date
〇 Name of publisher, publication date, electronic book, and pages

27. Your teacher wants you to write a report about a natural disaster. Choose the correct order of the steps from the choices below.
A. Make a list of questions about your topic that you would like to learn.
B. Decide upon a natural disaster topic.
C. Find information about your topic.
D. List what you already know about your topic.
● A, B, C, D
〇 B, D, A, C
〇 D, A, C, B
〇 B, A, C, D

28. You are studying world festivals in class. You are to report on one festival and find out how it started. Which research question will be most useful?
● What are the origins of the Chinese New Year celebration?
〇 What are the main festivals in Asia?
〇 What do families do to celebrate Chinese New Year?
〇 When is Chinese New Year?

29. You want to find out about atoms and molecules for a science project. Which resource could you use to find general background information?
30. You are studying the environment and the effect of climates on different regions of the world. Select the group of topics that is organized from broadest to narrowest topic.
- Lake > moon > mountain
- Rainforest > wetlands > desert
- Ecosystem > forests > rainforest
- Rainforest > forests > ecosystem

31. You need to make a model of the Egyptian pyramids. Which resource would be the most helpful to learn about the construction of the Egyptian pyramids?
- An online journal of a tourist who spent a month exploring the pyramids
- An Egyptian government website that shows photos and videos of the pyramids
- A poetry database about Ancient Civilizations

32. You need to find the time difference in hours between Chicago, Illinois, and Sydney, Australia. What is the best source to use?
- My best friend
- Google
- Dictionary
- Encyclopedia

33. You want to know more about the decision to build an airport in your city. Which of the following would be a primary source for this information?
- Television news report
- A newspaper articles
- The airport’s website
- The mayor’s report

34. You used a magazine article called “Today’s Immigrants” by Karen Fanning for your social studies project. You need to check some facts. Identify the best search strategy to use to locate the article in a periodical database.
- Subject search for Fanning
- Title search for “Today’s Immigrants”
- Subject search for “Today’s Immigrants”

35. You need to find out why dumping plastic bags in landfills is a problem for the environment. You choose an online general science eBook and locate the index. Plastic bags and landfills are not listed in the index. You need a broader term. Which term below should you try next?
- Dumps
36. You are doing a paper on the current research on climate change in Antarctica. Your database search on “climate change in Antarctica” returns too many results. Which of the following operators or filters is the best way to revise your search?

- Use the DATE filter
- Use the NOT operator
- Use the SOURCE filter
- Use the OR operator

37. Your group is creating an informational pamphlet on recycling batteries. Select the source below that has the most authority on the topic.

- Recycleabattery.org (a site created by battery manufacturers to encourage recycling)
- www.batteriesplus.com (listing of stores that recycle)
- www.duracell.com (A battery manufacturer website)
- www.epa.gov (U.S. Environmental Protection Administration with facts on battery recycling)

38. You are researching the effectiveness of speed cameras in your city and need to answer this research question: Do speed cameras reduce car accidents? Which fact below answers your research question?

- The police department has requested funding to obtain additional cameras.
- The police department receives many complaints that cameras are a money-making scheme.
- The police department reported serious collisions fell by 27% with cameras in place.

39. You are writing a report on the effects of high energy drinks. You found a website listing the benefits. Which of the following would best help you verify the accuracy of the information?

- Advertisements and celebrity endorsements
- Research articles and advertisements
- Facts from a government agency and celebrity endorsements
- Research articles and facts from a government agency

40. You are researching pros and cons of bottled water. Which resource would be most likely to include biased information about your topic?

- Bottling company newsletter
- Encyclopedia article about bottling
- Magazine article about bottling
- Government website

41. What is the best reason for citing your sources?
Citing shows your teacher that you did your research.
Citing identifies sources that your classmates may want to use.
Citing gives the location of the sources that you used.
Citing gives credit for the original work or the idea to the author.

42. You find a photo on the Internet that you would like to include in your report. What is the proper way to use this photo?
- Copy and paste the photo into your paper.
- Include a title for the photo in your paper.
- Cite the photo and include in your list of sources.
- Edit the photo to make it your own.

43. Which of the following is an act of censorship?
- A teacher correcting a student’s grammar
- An employee fired for not following directions
- The newspaper printing unpopular opinions in letters to the editor
- A citizen’s group forcing a librarian to remove a book from the library

44. You have the following citation to a book. Identify the publisher.
- William Morrow
- Margot Lee Shetterly
- Hidden Figures: Young Readers Edition

45. Your research topic is about the beaver’s home (called a lodge). Which research question would help you find related information?
- Why do beavers cut and fell trees?
- What do beavers eat?
- How do beavers use branches and mud for building?
- How do beavers impact the environment?

46. What is the best order of steps to follow when you are researching a new topic?
- Topic > select sources > background reading > focus topic > research
- Topic > background reading > focus topic > select sources > research
- Topic > background reading > select sources > focus topic > research
- Topic > focus topic > background reading > select sources > research

47. You need to give a short speech about a country in the news. What resource would be the best place to find some background information to help create a specific research question?
- A book about the history of the country
- A website about fashion in the country
An online encyclopedia article on the country
A newspaper article on an election in the country

48. You are assigned a research project on plants. You need to narrow the topic. Which group below begins with the broadest topic and then moves to the narrowest topic at the end?
○ Flowering plants, hybrid tulips, plants, tulips
● Plants, flowering plants, tulips, hybrid tulips
○ Hybrid tulips, tulips, flowering plants, plants
○ Tulips, plants, hybrid tulips, flowering plants

49. You are unsure of how to check out materials in your public library. Which of the following would be the best source for information on the library’s checkout procedures?
○ The city’s website
○ The local newspaper
○ Your friend
● The library’s website

50. You have been assigned a research project about sea pollution. Which would be the best tool to use?
○ An environmental database
● Google Maps
○ A current events database
○ A newspaper database

51. You want to know which teams won the Super Bowl the last five years. What resource would you use?
○ Google Maps
○ Encyclopedia
● Search Engine
○ Thesaurus

52. You are interested in knowing more information about a soldier’s life during war. Which of the following would be a primary source for this information?
○ Book about the war
○ Biography about the soldier
○ Encyclopedia article
● Soldier’s diary

53. You are looking for a book on creating new products from recycled plastic. Your online library catalog does not show any books on the topic when you use the search terms “new products from recycled plastic.” You should revise your search by using which of the following broader term?
54. You have used your school library catalog to find books on earthquakes. Using the information from the catalog put the books in order as they would be found on the shelf.
1. 551.2 RUB – Earthquakes, by Michelle Rubin
2. 551.4 ORM – Tsunamis, by David Orme
3. 551.2 MAC – Volcanoes & Earthquakes, by Ken Mack
54. You need to find a biography about Gary Paulsen. What kind of search should you do in the library online catalog?
○ Title search for Paulsen
○ Author search for Paulsen
● Subject search for Paulsen
56. You do an Internet search for Martin Luther but keep getting results for Martin Luther King. Which of the following operators would you use to exclude results for Martin Luther King?
○ Logical operator OR
○ Logical operator AND
○ Logical operator +
● Logical operator NOT
57. You are writing a paper on the effect of fast food on health. Which website is most likely to have the most objective information?
● U.S. National Institutes of Health
○ McDonald’s
○ National Restaurant Association
○ Burger King
58. You are looking for current books and websites about Pluto and why it is no longer a planet. Which source below offers the most current information to meet your need?
○ “Moon or Planet” – an article in the July 2008 issue of Scientific American magazine
○ Our Stars and Planets – a book written by A.J. Wright with a copyright date of 1996
○ “Pluto” – an entry in World Book Encyclopedia dated 2000
○ www.nasa.gov – a website created by the National Air and Space Administration that is updated daily.
The Planets – a book published by Planet Science about each of the nine planets, copyright date 1998

59. You are doing a paper on the safety of tanning beds. Which website would have the most authority on the topic?
   ● www.surgeongeneral.gov – Information from the U.S. Surgeon General on tanning beds
   ○ www.tanningtruth.org – A site sponsored by a tanning salon organization
   ○ www.celebritytan.com – A site with celebrity endorsements for tanning beds
   ○ Totallytan.net – A tanning salon site with tips for your tanning session

60. You are researching teen’s use of social media and need to answer this research question: Are teens concerned with their privacy on social media? Which fact below answers your research question?
   ○ Teen use of social media sites has grown significantly over the past three years
   ● Data show that teens are sharing more personal information on social media sites.
   ○ A survey reported 74% of teen social media users have deleted people from their “friends” list.

   ○ Chapter of a book
   ○ Publishing company
   ● Title of a magazine
   ○ Title of an article

62. You are doing a report on how to care for your pet. You plan to use a photo that you took of your own dog. What do you need to do to use it in your paper?
   ● Cite the photo and include in your list of sources.
   ○ Cut and paste it into your report.
   ○ Ask your teacher for permission to use it.

63. Some people believe that certain books are dangerous to read. They say that these books should not be in the public library. The librarian says that library users have the right to read materials with many viewpoints. Which of the following refers to this right?
   ○ Fail use
   ● Intellectual freedom
   ○ Intellectual property
   ○ Freedom of information

64. You find a sentence in a book that you would like to include in your report using the author’s own words. Which of the following is the correct way to include this sentence?
○ Rewrite the sentence and include the author’s name and the title of the book.
○ Rewrite the sentence.
○ Place the exact words in quotation marks.
● Place the exact words in quotation marks and include the author’s name and page number.

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APPENDIX E

SEMI-STRUCTURED INTERVIEW PROTOCOL

I will start recording now, with your permission.

Hi _______________________ (Student’s name). Thank you for your participation today. As you know, I am Mrs. Jeffcoat and I have been coteaching with Mrs. Ring for the last couple of weeks. I am working on my doctorate at USC and this interview is part of how I am collecting data for my research study. Your answers will not only help me with my degree, but they will also potentially help Mrs. Steinbeck and me be better, more effective teachers, in the long run. This interview will take about forty minutes to an hour and will include a series of questions about your experiences in your social studies class over the last couple of weeks while Mrs. Steinbeck and I have been working together. Your opinion is very important to me, and I want to make sure I get every detail about what you say, so I will be recording this interview. Everything that you say will be confidential. You may choose to skip a question if you are not comfortable answering it. If you need to take a break, let me know. Later, after I have turned our visit into a script of what we said, I will check with you to see if I have accurately recorded what you said. I would like to remind you of the written consent to voluntarily participate in this study. I am the only investigator in this study. You and I have a signed and dated copy of your agreement. Do you have any questions before we begin? If not, with your permission, we will begin.

1) Please tell me how you feel about social studies as a subject. Please tell me how you feel about using technology in the classroom.

2) Over the last couple of weeks when Mrs. Steinbeck and I have been working together, do you feel any different about how you use technology to find out information? Why or why not?

3) How would you describe your overall experience of being a student in our social studies class when Mrs. Steinbeck and I have been working together?

Prompts: Have you been more or less interested in learning? Have you been bored? Have you happy to be in class?

4) Please tell me about your attention in our social studies class over the time Mrs. Steinbeck and I have been teaching together. Have you been more or less focused on our lessons? Why do you think that is?
Did you pay attention more so you can answer questions and why do you think that is? Did you volunteer to answer questions or make comments more often? Why do you think that is?

5) Was there a time when you lost interest and stopped listening or being engaged while Mrs. R. and I were working with your class on our social studies unit?

Is this something that has happened before, or did it just happen during this unit?

6) Please tell me about the things you do to help you understand the information.

When you do not understand something, what do you do? Do you need to ask the teacher to explain things and to give extra help to you or other students having difficulty?

Has this changed or was it any different when Mrs. Steinbeck and I were working together compared to other social studies units, please tell me why?

7) Tell me about how you connect what you learn to anything else.

What strategies do you use to remember what you learn?
Do you try to compare what you learned to things you have learned before?
Do you reword information?
Do you try to decide what is important to study?
Has this changed or was it any different when Mrs. Steinbeck and I were working together compared to other social studies units?

8) How do you feel about the coteaching set-up?

9) Did you enjoy learning about digital literacy along with social studies? Why or why not?

10) Do you feel more confident about using digital literacy tools now than you did before? Why or why not?

11) How do you think mixing digital literacy with social studies might help you on future social studies projects and in other classes?

12) Did you experience any challenges especially on your project, during the time Mrs. Steinbeck and I were teaching together? If yes, why? If not, why?

13) Do you have any questions or comments you would like to ask or tell me?

Okay, thank you so very much for your time. Remember, this interview is helping me with my work as a student, and it will help both Mrs. Steinbeck and I be better teachers, so your input is really valuable. Again, thank you. I am now going to stop recording our interview.
APPENDIX F
PERMISSION TO USE WANG’S (2014) CEI

From: FORD, JERI <fordjl3@email.sc.edu>
Sent: Sunday, October 3, 2021, 10:47 AM
To: Wang, Ze <WangZe@missouri.edu>
Subject: Seeking permission to use your Classroom Engagement Inventory

Dear Dr. Wang,
I am a doctoral student at the University of South Carolina. In my research, I discovered your work on measuring student engagement. I am interested in possibly using the Classroom Engagement Inventory to survey my middle school students. As a librarian at an Intermediate School, I am working on increasing teacher/librarian collaboration in order to provide students with digital literacy instruction that is infused into regular academic content. I would like to use your student engagement instrument to perhaps determine if students are more engaged in units where the librarian and an academic teacher work together. I would like to use your survey during a non-coteaching unit, and then in a unit where a teacher and librarian collaborate. May I please have permission to use your survey?
Thank you,
Jeri L. Jeffcoat
Doctoral Student - University of South Carolina
School Librarian

From: Wang, Ze <WangZe@missouri.edu>
Sent: Sunday, October 3, 2021, 11:15 PM
To: FORD, JERI <fordjl3@email.sc.edu>
Cc: Bergin, Christi <berginc@missouri.edu>; Bergin, David <bergind@missouri.edu>
Subject: RE: Seeking permission to use your Classroom Engagement Inventory

Hi Jeri,

You have our permission to use the CEI. Attached are a copy of the administration guide and a copy of the CEI itself.

Good luck with your project,

Ze Wang, Ph.D.  (she/her/hers)
Associate Professor
Re: Seeking permission to use your Classroom Engagement Inventory

FORD, JERI <fordjl3@email.sc.edu>
Mon 10/4/2021 344 PM
To: Wang, Ze <WangZe@missouri.edu>

Dear Dr. Wang,
Thank you so much for your good wishes as well as permission to use your Classroom Engagement Inventory!
Sincerely,
Jeri Jeffcoat
APPENDIX G

ONLINE DIGITAL LITERACY ASSESSMENT

ALIGNMENT TO STANDARDS

Table indicating ODLA Question Alignment with the South Carolina Computer Science and Digital Literacy Process Standards and ISTE standards

Each question below addresses the following overall student expectations from the South Carolina Computer Science and Digital Literacy Process Standards:

Create, test, and refine computational artifacts.
   a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
   e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts. (p. 35)

<table>
<thead>
<tr>
<th>Question</th>
<th>SC Digital Lit. Standards</th>
<th>ISTE Standard</th>
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<tbody>
<tr>
<td>Developing a Topic</td>
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</table>
| 1. You need to research a holiday from a different country and create a handout about it for your final product. Which subtopic should be included in your handout? | 6.DA.2.1 Explore real-world data collection | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.  
3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
| 2. Most report topics are too broad and must be narrowed. Which topic is the narrowest? | 6.DA.2.1 Explore real-world data collection | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other |
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.  
3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
| 4. Read the original topic and the revised topic. Decide if the revised topic is broader (less specific) or narrower (more specific) than the original topic. | 6.DA.2.1 Explore real-world data collection | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.  
3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
| 5. You are assigned a research project on animals. You need to narrow the topic. Which group below begins with the broadest topic and then moves to the narrowest topic at the end? | 6.DA.2.1 Explore real-world data collection | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.  
3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tr>
<td>6. You have chosen music as your topic for a research project. This</td>
<td>6.DA.2.1 Explore real-world data collection</td>
</tr>
<tr>
<td>topic is too broad and needs to be narrowed. Which would make a more</td>
<td>3. Knowledge Constructor</td>
</tr>
<tr>
<td>manageable topic for your research?</td>
<td>3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td></td>
<td>3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.</td>
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<tr>
<td></td>
<td>Evaluate Sources and Information</td>
</tr>
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<td>7. It is important to determine if a website’s information is accurate.</td>
<td>Standard 3: Evaluate the tradeoffs in what and how information is shared digitally.</td>
</tr>
<tr>
<td>Which of the following would help you decide that the website’s</td>
<td>Standard 4: Evaluate how legal and ethical issues shape computing practices.</td>
</tr>
<tr>
<td>information is accurate?</td>
<td>6.IC.3.1 Identify guidelines for safely using the internet.</td>
</tr>
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<td></td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
</tr>
<tr>
<td></td>
<td>6.DA.2.1 Explore real-world data collection</td>
</tr>
<tr>
<td>8. You need to find information about the planet Jupiter for a school</td>
<td>Standard 3: Evaluate the tradeoffs in what and how information is shared digitally.</td>
</tr>
<tr>
<td>project. Your teacher wants one of your sources to be a Web page. You</td>
<td>6.IC.3.1 Identify guidelines for safely using the internet.</td>
</tr>
<tr>
<td>have found several that may work, but you must evaluate them to make</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
</tr>
<tr>
<td>sure they are good sites. Using the choices</td>
<td>6.DA.2.1 Explore real-world data collection</td>
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<td></td>
<td>Evaluate how legal and ethical issues shape computing practices.</td>
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<td></td>
<td>2. Digital Citizen</td>
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<td></td>
<td>2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
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<td>3. Knowledge Constructor</td>
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<td></td>
<td>3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data, or other resources.</td>
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<td>2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
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<td>3. Knowledge Constructor</td>
</tr>
<tr>
<td></td>
<td>3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data, or other resources.</td>
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215
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<tr>
<th>below, select the question that will not help you evaluate the sites.</th>
<th>6.IC.4.1 Identify unethical and illegal behavior. 6.DA.2.1 Explore real-world data collection</th>
<th>relevance of information, media, data, or other resources.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Which term means lack of bias or prejudice?</td>
<td>Standard 3: Evaluate the tradeoffs in what and how information is shared digitally. 6.IC.3.1 Identify guidelines for safely using the internet. Standard 4: Evaluate how legal and ethical issues shape computing practices. 6.IC.4.1 Identify unethical and illegal behavior. 6.DA.2.1 Explore real-world data collection</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. 3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. 3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data, or other resources.</td>
</tr>
<tr>
<td>10. The extent of the subject matter refers to:</td>
<td>Standard 3: Evaluate the tradeoffs in what and how information is shared digitally. 6.IC.3.1 Identify guidelines for safely using the internet. Standard 4: Evaluate how legal and ethical issues shape computing practices. 6.IC.4.1 Identify unethical and illegal behavior. 6.DA.2.1 Explore real-world data collection</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. 3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. 3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data, or other resources.</td>
</tr>
</tbody>
</table>
11. You have used a search engine to locate websites on the negative effects of drugs on teenagers. Below are some websites that your search retrieved. Read over the site descriptions and choose the one that would best meet your information need.

| Standard 3: Evaluate the tradeoffs in what and how information is shared digitally. 6.IC.3.1 Identify guidelines for safely using the internet. Standard 4: Evaluate how legal and ethical issues shape computing practices. 6.IC.4.1 Identify unethical and illegal behavior. 6.DA.2.1 Explore real-world data collection |

12. The content of websites can change frequently. In order to make sure the information is current, you need to look for which of the following?

| Standard 3: Evaluate the tradeoffs in what and how information is shared digitally. 6.IC.3.1 Identify guidelines for safely using the internet. Standard 4: Evaluate how legal and ethical issues shape computing practices. 6.IC.4.1 Identify unethical and illegal behavior. 6.DA.2.1 Explore real-world data collection | 2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. 3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. 3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
| 13. You are working on an assignment about the earthquake that hit Haiti in January 2010. You came across a quote attributed to Trenton Daniel of the Miami Herald. What would be the best resource to use to verify the authority of this quote? | Standard 3: Evaluate the tradeoffs in what and how information is shared digitally.  
6.IC.3.1 Identify guidelines for safely using the internet.  
Standard 4: Evaluate how legal and ethical issues shape computing practices.  
6.IC.4.1 Identify unethical and illegal behavior.  
6.DA.2.1 Explore real-world data collection | 2. Digital Citizen  
2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.  
3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.  
3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
| --- | --- | --- |
| 14. “The worst natural disaster the world has seen took place when an earthquake of 9.0 magnitude took place in the Indian Ocean. “This sentence is best described as: | Standard 3: Evaluate the tradeoffs in what and how information is shared digitally.  
6.IC.3.1 Identify guidelines for safely using the internet.  
Standard 4: Evaluate how legal and ethical issues shape computing practices.  
6.IC.4.1 Identify unethical and illegal behavior.  
6.DA.2.1 Explore real-world data collection | 2. Digital Citizen  
2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.  
3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.  
3.b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. |
| 15. You want to find out when and where the most recent earthquake took place. Which of these sources would have the potential? | 6.DA.2.1 Explore real-world data collection | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources. |
<table>
<thead>
<tr>
<th>Question</th>
<th>Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>most recent earthquake information?</td>
<td></td>
<td>resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>16. Is this statement true or false? The Google search engine is an example of a fee-based resource.</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>17. Your science class is studying the solar system. You need to find a current article about the solar system for extra credit. Which database should you check first for a current article?</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
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**Use Information Responsibly, Ethically, and Legally**

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<tr>
<th>Question</th>
<th>Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>18. You used facts from a website for your poster. What facts about the website should be in your biography?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>19. Which is a case of plagiarism?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>20. Why is it important to create a Works Cited page after you have written your paper or completed your project?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>21. Your teacher wants you to create a library Web</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen</td>
</tr>
</tbody>
</table>
page to post on the school website, and you want to use graphics to enhance the look of the Web page. What source should you use to get these graphics?

2. While doing research, you find a sentence in a book or online database that you would like to include in your paper. According to the MLA Style Guide, what must you do with this information in order to correctly give credit to the author?

23. Your friend tells you about a website where you can download all of the latest songs that you hear on the radio for free. If you use this website for this purpose, you will be violating which of the following?

24. Your teacher has assigned a report on dinosaurs. You have been interested in dinosaurs for a long time and know a great deal about them. You know so much, in fact, that you think that you can just write a report on dinosaurs without any research. What is the best way to complete your assignment?

25. You want a copy of a song from your favorite band’s new CD. Which of these allows you to legally copy the song from the Internet?

<table>
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<tr>
<th>Question</th>
<th>Standard</th>
<th>Requirement</th>
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<tr>
<td>page to post on the school website, and you want to use graphics to</td>
<td>2.c. Demonstrate an understanding of and respect for the rights and</td>
<td>2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual</td>
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<tr>
<td>enhance the look of the Web page. What source should you use to get</td>
<td>obligations of using and sharing intellectual property.</td>
<td>property.</td>
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<tr>
<td>these graphics?</td>
<td></td>
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<tr>
<td>22. While doing research, you find a sentence in a book or online</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and</td>
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<td>database that you would like to include in your paper. According to the</td>
<td></td>
<td>sharing intellectual property.</td>
</tr>
<tr>
<td>MLA Style Guide, what must you do with this information in order to</td>
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<tr>
<td>correctly give credit to the author?</td>
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<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and</td>
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<td>sharing intellectual property.</td>
</tr>
<tr>
<td>this website for this purpose, you will be violating which of the</td>
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<tr>
<td>following?</td>
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<td>24. Your teacher has assigned a report on dinosaurs. You have been</td>
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<tr>
<td>them. You know so much, in fact, that you think that you can just</td>
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<td>write a report on dinosaurs without any research. What is the best way</td>
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<td>25. You want a copy of a song from your favorite band’s new CD. Which</td>
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<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and</td>
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<td>of these allows you to legally copy the song from the Internet?</td>
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<td>sharing intellectual property.</td>
</tr>
</tbody>
</table>
| Question                                                                 | 6.I.C.4.1 Identify unethical and illegal behavior. | 2. Digital Citizen  
2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. |
|-------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. |
| 27. You need to make a model of the Egyptian pyramids. Which resource would be the most helpful to learn about the construction of the Egyptian pyramids? | 6.C.S.1.2 Identify relevant problems and how they are solved using computer science and various types of computing devices | 1. Empowered Learner  
1.d. Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies. |
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. |
| 29. You want to know more about the decision to build an airport in your city. Which of the following would be a primary source for this information? | 6.D.A.2.1 Explore real-world data collection       | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. |
| 30. You used a magazine article called “Today’s Immigrants” by Karen Fanning for your social studies project. You need to check some facts. Identify the best search strategy to use to locate the information? | 6.D.A.2.1 Explore real-world data collection       | 3. Knowledge Constructor  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. |
<table>
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<tr>
<th>Question</th>
<th>Action</th>
<th>Response</th>
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<tr>
<td>31. You need to find out why dumping plastic bags in landfills is a problem for the environment. You choose an online general science eBook and locate the index. Plastic bags and landfills are not listed in the index. You need a broader term. Which term below should you try next?</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>32. You are doing a paper on the current research on climate change in Antarctica. Your database search on “climate change in Antarctica” returns too many results. Which of the following operators or filters is the best way to revise your search?</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>33. Your group is creating an informational pamphlet on recycling batteries. Select the source below that has the most authority on the topic.</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>34. You are writing a report on the effects of high energy drinks. You found a website listing the benefits. Which of the following would best help you verify the accuracy of the information?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>35. You are researching pros and cons of bottled water. Which resource would be most likely to include biased information about your topic?</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>36. What is the best reason for citing your sources?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
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</tr>
<tr>
<td>37. Which of the following is an act of censorship?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>38. You find a photo on the Internet that you would like to include in your report. What is the proper way to use this photo?</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>39. You have the following citation to a book. Identify the publisher.</td>
<td>6.IC.4.1 Identify unethical and illegal behavior.</td>
<td>2. Digital Citizen 2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>40. What is the best order of steps to follow when you are researching a new topic?</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
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<td>41. You need to give a short speech about a country in the news. What resource would be the best place to find some background information to help create a specific research question?</td>
<td>6.DA.2.1 Explore real-world data collection</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>42. You have been assigned a research project about sea pollution. Which would be the best tool to use?</td>
<td>6.DA.2.1 Explore real-world data collection 6.CS.1.2 Identify relevant problems and how they are solved using computer science and various types of computing devices</td>
<td>3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
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<tr>
<td>43. You want to know which teams won the Super Bowl the last five years. What resource would you use?</td>
<td>6.DA.2.1 Explore real-world data collection 6.CS.1.2 Identify relevant problems and how they are solved using computer science and various types of computing devices</td>
<td>1. Empowered Learner 1.a. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes. 1.b. Build networks and customize their learning environments in ways that support the learning process. 1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. 1.d. Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies. 3. Knowledge Constructor 3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
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</tbody>
</table>
| **44. You are interested in knowing more information about a soldier’s life during war. Which of the following would be a primary source for this information?** | **6.DA.2.1 Explore real-world data collection** | **3. Knowledge Constructor**  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. |
| **45. You do an Internet search for Martin Luther but keep getting results for Martin Luther King. Which of the following operators would you use to exclude results for Martin Luther King?** | **6.DA.2.1 Explore real-world data collection**  
**6.CS.1.2 Identify relevant problems and how they are solved using computer science and various types of computing devices** | **1. Empowered Learner**  
1.a. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.  
1.b. Build networks and customize their learning environments in ways that support the learning process.  
1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.  
1.d. Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.  
**3. Knowledge Constructor**  
3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. |
<table>
<thead>
<tr>
<th>Question</th>
<th>6.DA.2.1 Explore real-world data collection</th>
<th>6.IC.4.1 Identify unethical and illegal behavior.</th>
</tr>
</thead>
<tbody>
<tr>
<td>46. You are writing a paper on the effect of fast food on health. Which website is most likely to have the most objective information?</td>
<td>2. Digital Citizen</td>
<td>3. Knowledge Constructor</td>
</tr>
<tr>
<td>47. You are looking for current books and websites about Pluto and why it is no longer a planet. Which source below offers the most current information to meet your need?</td>
<td>3. Knowledge Constructor</td>
<td>3.a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</td>
</tr>
<tr>
<td>48. You are doing a paper on the safety of tanning beds. Which website would have the most authority on the topic?</td>
<td>2. Digital Citizen</td>
<td>2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
<tr>
<td>50. You are doing a report on how to care for your pet. You plan to use a</td>
<td>6.DL.2.1 Identify rules for safe internet use.</td>
<td>2.a. Cultivate and manage their digital identity and respect for the rights and obligations of using and sharing intellectual property.</td>
</tr>
</tbody>
</table>
photo that you took of your own dog. What do you need to do to use it in your paper?

6.IC.3.1 Identify guidelines for safely using the internet.
6.IC.4.1 Identify unethical and illegal behavior.

reputation and are aware of the permanence of their actions in the digital world.

2.b. Engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.

2.c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

2.d. Manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.
APPENDIX H

PARENTAL CONSENT FORM

Dear Parent/Guardian:

I am the librarian and technology specialist at FMIS. I am currently working towards a doctoral degree in curriculum and instruction from the University of South Carolina. As a part of the dissertation completion requirements, I will be conducting an action research study to examine how coteaching with your child’s social studies teacher as we combine social studies content and digital literacy to investigate the effects of this coteaching on students’ engagement, students’ social studies project scores, and students’ digital literacy skills. I will be teaching alongside your child’s teacher during one whole social studies unit as well as observing and collecting data during regular classroom instruction times. Participation will involve students responding to questionnaire items before and after our coteaching unit about classroom engagement. Also, students will be asked to take a pre- and posttest to assess their digital literacy skills. I will also ask several students to provide additional feedback through recorded interviews. The study’s data and its generated results are intended to inform and improve our school’s instructional practices particularly concerning digital literacy instruction. There are no potential risks for participating in the study and all student data will be kept confidential. Study methods will comply with all research guidelines for both the school district and the University of South Carolina. The researcher may publish the study results but will not use student names or other personally identifiable information. Participation is strictly voluntary and there are no penalties should you decline this request for your child’s participation.

Participation will not impact your child’s grades, treatment, services rendered, or infringe upon any other rights to which you or your child would otherwise be entitled. You may at any time withdraw your child’s participation. Since the study can potentially benefit and inform various fields of education, instructional and educational technology, and professional growth and development programs for current educators and those enrolled in training programs, I would greatly appreciate your consent for your child to participate. If you have questions regarding this study or your child’s participation, please feel free to contact me at 803.XXX-XXXX or jerijeffcoat@schooldistrict.net

Sincerely,
Jeri L. Jeffcoat, Doctoral Candidate, USC

Please Return this form with the information below filled out by DATE

I ______________________________________________, do give consent for my child, ___________________________________________, to participate in the above referenced study.

or

I ____________________________________________, do not give consent for my child, ____________________________________________, to participate in the above referenced study.

Parent’s Signature: __________________________ Date: ___________
APPENDIX I

STUDENT INFORMED CONSENT FORM

Date:
Dear Student:
As you know, I am the librarian and technology specialist here at FMIS. I am working towards a doctoral degree at the University of South Carolina. As a part of the degree requirements, I will be conducting an action research study to see how coteaching with Mrs. Steinbeck, as we combine social studies and digital literacy, effects how you learn and how deeply you are engagement in both social studies and digital literacy. I will be teaching alongside Mrs. Steinbeck during one whole social studies unit as well as observing and collecting data during regular classroom instruction times. Your participation will involve responding to questionnaire items before and after our coteaching unit about classroom engagement. Also, you will be asked to take a pre- and post-test to assess their digital literacy skills. I might even ask you to provide additional feedback through a recorded interview. The study’s results are intended to improve our school’s teaching practices mostly concerning digital literacy. There are no potential risks for participating in the study and all of your information will be kept confidential. Study methods meet all research guidelines for both the school district and the University of South Carolina. I may publish the study results but will not use your name or other personally identifiable information. Participation is strictly voluntary and there are no penalties should you say no to participating. Participation will not change your grades, make anyone feel less or more of you, or infringe on your rights. Also, you may quit participating in the study at any time. Since the study can potentially help teachers and librarians not just in our district but also even further, I would greatly appreciate your consent to participate. If you have question, please feel free to contact me at jerijeffcoat@schooldistrict.net.
Sincerely,
Jeri L. Jeffcoat
Doctoral Candidate
USC

Please Return this form with the information below filled out by DATE

I ____________________________, do give consent to participate in the study described above.

or

I ____________________________, do not give consent to participate in the study described above.