Reading Across Multiple Multimodal Sources in Historical Inquiry

BY

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THESIS

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This thesis is dedicated in memory of my grandfather, Daniel Garvey, who made my educational path a possibility because of his selfless love to his family.
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Summary

In this thesis, I sought to describe the reading processes exhibited by students as they read multiple multimodal texts like audio, video, and images to investigate a historical question. Building on previous studies of multiple text reading in history, I aimed to contribute to that body of work by focusing on non-traditional multimodal sources. In an age of rapidly increasing access to and use of multimodal sources and a demand for reading and comprehending increasingly complex and specialized texts, it appeared there was a gap in the research that this study could help to address.

This study used mixed methods to investigate 1) how students read multiple multimodal sources, 2) how those multimodal sources influenced students’ historical reasoning, 3) how students used multimodal sources to respond to a historical inquiry question through an argumentative essay, and 4) how individual learner characteristics like prior knowledge, interest, and reading ability contributed to students’ ability to construct an argument after reading multiple multimodal sources. Fifty-one students in two high school history classes participated in the study. Forty-three students completed a three day inquiry task, using a single website to read eight multimodal sources about the Gulf of Tonkin Incident and wrote an essay. Eight students completed think-aloud protocols while reading the same eight multimodal sources and participated in a semi-structured interview immediately following the think-aloud protocol.

Analyses of both the whole class task and the think-aloud interviews revealed that students were very capable of reading complex historical sources in multimodal formats. Students exhibited complex reading behaviors and used historical think heuristics without instruction. Multimodal historical sources appeared to facilitate complex reading
behavior. Students wrote essays that garnered similar scores for historical reasoning and argumentation when controlling for reading ability. Students with lower reading proficiency as measured by the ACT exhibited similar reasoning and argumentation as those students who possessed higher reading proficiency. Two cases were analyzed to demonstrate how two students with starkly different reading ability, approached the task with similar sophistication.

Despite the similarities among students regardless of reading ability, the students in this study demonstrated a limited ability to construct a written argument. While think-aloud protocols revealed a high degree of sophistication in historical reasoning, students in the whole class task struggled to demonstrate that sophistication through an argumentative essay. Students did use a variety of sources in their essays but it was inconclusive as to which modality (audio, video, image) influenced student use of those sources.

The results of this study suggest that the use of multimodal sources in historical inquiry may benefit less proficient readers. The study also demonstrated that students could reason with complex historical sources. Despite the complexity of thinking revealed by students, it is also evident that multimodal sources cannot just be added to the curriculum. Disciplinary literacy strategies are necessary to help foster critical and integrated reading of complex historical sources. Multimodal sources did not help students to write high quality arguments either. Teacher scaffolding of writing for argument is critical regardless of the text types used for inquiry.
CHAPTER 1
INTRODUCTION

Adolescent literacy has received considerable attention in recent years as a result of reports about the lack of achievement exhibited on national standardized tests like the National Assessment of Educational Progress (NAEP) and the ACT (ACT, 2006; Grigg, Donahue, & Dion, 2007). Spearheaded by the Carnegie Corporation, research reports like *Time to Act: An Agenda for Advancing Adolescent Literacy for College and Career Success* argue that it is crucial to focus on improving adolescent literacy achievement by focusing on reading in the disciplines (Carnegie, 2010). History is one of the core disciplines in any middle or high school curriculum. For example, every student takes a United States history course in both middle and high school. The performance of students on measures of historical knowledge has also been historically lamented throughout the 20th century (Wineburg, 2001). But attention to content alone will not ameliorate the lack of literacy or content achievement as measured by tests like the ACT or NAEP. As a result, a focus on disciplinary literacy has been suggested as a way to improve both content area learning and literacy achievement (Moje, 2008). This study concentrated on the discipline of history in a high school setting.

Thoughts of a high school history classroom can conjure up memories of filmstrips and old dusty maps that send shivers down the spine. History teachers are often chided for their liberal use of videos to augment instruction. But what do we know about the variety of texts that are pervasive in the history classroom? How do students make sense of the multitude of traditional texts and primary and secondary sources that are available for historical inquiry? In this study, I argue that considerations of the range
of texts that are prevalent within a discipline like history must be examined in order to better understand how disciplinary learning transpires in a high school classroom.

This study sought to understand the meaning making processes exhibited by high school students as they read multiple multimodal texts in a web-based environment and subsequently wrote about their historical interpretations. Because most research on multiple texts has focused on printed texts, this study is an extension of multiple text research in a classroom specific context. The texts (video, audio, and image) are types of texts that students are likely to encounter in their investigation of history at the high school level and on the Internet.

Reading comprehension is argued to be comprised of the interrelationship of the reader, the text, and the activity that are all situated in the context in which reading occurs (RAND, 2002). Reading comprehension has a long line of research, but the role text plays in comprehension in a specific discipline has not been deeply studied (Moje, Stockdill, Kim & Kim, 2010). And since text can be broadly construed to include any representations that create meaning (Bloome & Egan-Robertson, 1993), it is important to expand research on the role of non-traditional texts in particular disciplinary contexts. That is, how do readers comprehend a range of texts in discipline specific contexts and how do those texts impact a reader’s comprehension? Moje et al. (2011) suggest as well, that a careful study of the role of non-traditional printed texts in the study of history, “seems long overdue” (p. 465).

Literacy practices that are necessary for in-school academic tasks have typically been studied using traditional printed texts. More recently, literacy research has begun to focus on the literacy practices required to make meaning from the texts that are integral
to everyday life—that is, texts that are present through the use of information and
communication technologies (ICTs) such as computers, cell phones, IPods, and so on.
These “new literacy” tools are used when reading text in non-traditional formats like
multimedia sources found on the Internet (Coiro, Knobel, Lankshear, & Leu, 2008).
Mayer (2005) defines multimedia as, “presenting words (such as printed text or spoken
text) and pictures (such as illustrations, photos, animation, or video).” Access to
multimedia texts is exploding with the expansion of the Internet, text messaging, instant
messaging, blogging, IPods/IPads, social networking, and so on. As a result of the
expansion of these technologies, teen use of multimedia has grown exponentially over the
past 5 years (Kaiser Family Foundation, 2010). Adolescents are immersed in a context of
multimedia consumption and production.

New literacy practices are needed to interact with texts that make use of a
combination of print and non-print modalities such as audio, video and image. These
“new literacies” are difficult to define because they are constantly changing with rapidly
increasing technological innovation (Leu, Kinzer, Coiro, & Cammack, 2004). Quickly
changing information and contexts requires that new literacies evolve. (Leu, et al., 2004).
The fluid nature of these literacies makes it imperative to grasp what sense students make
of them. New literacies are a medium of meaning making but are also a distinct set of
social practices in which students engage both in and out of school (Knobel & Lankshear,
2007). Therefore, studies of new literacies have focused on both the technological tools
associated with new literacies and the practices that students deploy while using those
tools.
New literacies practices involve complex processing. Their complexity is revealed through the vast number of links that can be made within and across multimodal texts. Lemke (1998) argues that meaning potentials of new literacy texts are multiplicative because of the number of intratextual (within text) and intertextual (between text) links that utilize more than one mode of communication. This observation is relevant to students who engage in both out-of-school and in-school literacies including the conduct of historical inquiry, the focus of this study. Currently, the field has yet to fully understand the role of multimodality in relation to the sense making that takes place in a specific discipline like history.

Multiple multimodal sources expand the number of possible meanings students can create. Using multiple multimodal sources, the task of meaning creation becomes much like the kind of sense making students use in their everyday lives as they negotiate meanings through print, visual, and auditory media on television, the Internet, smartphones, IPods, and so on. By expanding the notion of “text” to something that is multimodal and intertextual, the study of history can become more nuanced and complex. By expanding the number and quality of historical sources, new voices and multiple perspectives are brought to historical inquiry. When students create intertextual ties across multiple texts to construct historical meaning, they are engaging in complex disciplinary practice that is personalized instead of distant and voiceless (Paxton, 1999).

This study is predicated on the argument that teachers provide students with opportunities to engage in high level reading practices when they use the multitude of texts they have at their disposal. Classroom teachers make use of several modes of meaning both on and offline to convey content to students (Wilson, 2011). The use of
texts afforded by multiple modes of meaning is referred to as multiliteracies. When the New London Group (1996) called for a “pedagogy of multiliteracies”, they were not calling for multimodal sources to simply be added into the curriculum. They were calling for a new conception of the curriculum that utilized the affordances of multimodal texts in an integral way. Unsworth (2001) argues, “rather than trying to ‘squeeze’ the textual affordances of new technologies into familiar literacy education procedures, we need to attend to the reality of new and emerging literacies” (p. 73). Therefore, the study of new literacies in a discipline like history should attend to the practices that are demanded through the use of historical sources that are multimodal.

The texts that a historian may value include a multitude of text types that extend beyond traditionally written primary and secondary sources. These sources are especially germane to the discipline of historical inquiry and afford historians a more varied set of texts to use for historical inquiry. Within the community of historians, digitized collections have generated a new age of inquiry that has made historical sources available to a wider audience. The Internet has also provided a range of textual resources from photographs, original manuscripts, audio, video, and hybrids of text and image that use flash animation (J.K. Lee, 2002).

Placing a study of students’ processing of multimodal texts within the context of historical inquiry makes sense; students engaged in multimodal instruction using new literacies are immersed in complex historical practice. What are the meaning making potentials that are created as a result of expanding what counts as text? How are those multiple multimodal texts used to create historical meaning? How do the theories of multimodality and intertextuality explain what actually occurs in classrooms? How do
students make meaning across multiple multimodal sources and integrate those sources into an argument? These are questions that have yet to be answered.

Research in the teaching and learning of history has advocated the teaching of historical thinking skills (e.g. Bain, 2006; Lee & Ashby, 2005; Monte-Sano, 2008; Sexias, 1993b; Vansledright, 2002a). It is argued that the goal of history instruction should be to provide students opportunities to make sense of the past by critically analyzing historical accounts. In order to critically analyze accounts of the past, students need to analyze primary and secondary sources (Bain, 2006; Vansledright, 2002a). The goal of this type of historical instruction is for students to use primary and secondary sources to analyze and confront historical accounts that might be found in textbooks. Additionally, Monte-Sano (2008) argues that students’ writing about historical accounts is improved when writing interpretations using primary and secondary sources. These pedagogical goals have also materialized into national educational policy.

In 2010, forty-eight states adopted the Common Core Standards for English Language Arts and Mathematics. The English Language Arts standards include specific guidelines for literacy in History/Social Studies. Standards for upper high school include the “ability to integrate and evaluate multiple sources of information presented in diverse formats and media” and “integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources” (CCSO, 2010). Teaching historical thinking is now an integral part of a common core curriculum.

Whereas students interact with the Internet daily as their primary textual resource, typically school tasks use textbooks and single texts, or perhaps the Internet as a
If students are to engage in complex historical inquiry that requires interpretation of the past instead of studying the past as a series of events, they will need to be able to read the texts that are valued in the discipline, discuss those texts, and create and defend interpretations of those texts. Multiple texts in multiple formats are necessary to facilitate this type of teaching and learning in history.

**Purpose of the Study**

The purpose of this study was to describe the reading processes of students who read multiple, multimodal texts in an online environment to create historical meaning about an inquiry question. The study was needed because the study of multiple texts is often not focused on academic understanding of multimodal texts and how they contribute to historical thinking despite the fact that students engage with text and image on a daily basis. Next, this study aimed to investigate how different types of multimodal texts influence students’ historical understandings of a controversial historical topic. Lastly, because historical thinking involves the creation of interpretations of history with evidence from multiple sources, this study sought to learn how students come to synthesize various texts when they have the task of creating a historical argument in response to a historical inquiry question.

History is an optimal discipline for this study. While historians primarily make use of traditional primary and secondary sources, they also rely on the use of multiple multimodal sources such as photographs, political cartoons, maps, films, and audio files to create interpretations of history. To infer meaning, historians must make sense of multiple convergent and divergent sources. They construct theories about historical events based upon the inferences they make, and write arguments defending the stories of
history they create. Thus, teaching students to engage in historical thinking means engaging students in using the same types of multiple sources. The next section examines the theoretical constructs that framed the analysis of multiple multimodal text use.

**Theoretical Framework**

Theorists in the 20th century recognized the importance of the linguistic turn (Rorty, 1967), that is, they acknowledged the primacy of language in understanding phenomena. In the 21st century, some have argued that we are at the dawn of the visual or pictorial turn (Mitchell, 1994). This turn acknowledges that multiple modes of meaning cannot necessarily be separated. The visual or pictorial turn is evident in the work on multimodality and its impact on literacy and learning (e.g. Callow, 2006, Kress & vanLeeuwen, 1996; Kress, 2003; Unsworth, 2006). This line of literacy research, that addresses the intersection of words, spoken and written, and images, static and moving, in the construction of meaning, highlights the need for examination of the role of these texts in specific disciplines.

Both cognitive science and sociocultural research perspectives have aimed to expand understandings of the processes by which students come to make meaning from different kinds of text. Cognitive science studied students’ text processing primarily through think-aloud protocols. These studies have illuminated the reading processes that students exhibit during the reading of either single or multiple texts. Studies that take a sociocultural perspective have provided insights into how the role of the activity and context of learning impact student reading. Whether the focus is on individual student processes associated with meaning making or social processes that influence meaning
making, the changing nature of literacy and its impact on adolescent learning demands that multimodal sources be considered. This study drew on both cognitive and sociocultural perspectives in order to inform the design of the task and the analysis of the data. The two intersecting theoretical frameworks that guided this study were the Model of Domain Learning (Alexander, 1997, 2003) and multiliteracies (New London Group, 1996).

The Model of Domain Learning (Alexander, 1997, 2003) was used to inform the ways that individuals come to learn in a particular domain like history. This cognitive framework provides a theory for how one becomes an expert in a particular domain of learning but does not address the role of text in learning. Therefore, the theory of multiliteracies (New London Group, 1996) that draws on sociocultural theory informed how individuals make meaning across a wide range of texts, particularly as society has shifted to reading more digital texts. More specifically, the construct of multimodality informed how individuals make meaning with texts that draw on multiple modes of information that utilize, visual, spatial, and auditory channels. While the Model of Domain Learning (Alexander, 1997, 2003) and multiliteracies research come from different research traditions, they are both invaluable tools for informing how one learns in a domain through the use of multimodal texts.

The Model of Domain Learning (Alexander, 1997, 2003) provides a framework for how a learner moves from acclimation, to competence, to proficiency in a domain or discipline like history. Alexander argues that knowledge, processing strategies, and interests are interconnected components that contribute to domain expertise (See Figure 1.1).
Knowledge can be parsed into domain knowledge and topic knowledge (Alexander, 1997). Domain knowledge is the range of knowledge of a particular subject like history whereas topic knowledge is more specialized, like one’s knowledge of the Vietnam War or Tonkin Gulf Incident. Processing strategies include more surface level strategies like quoting or paraphrasing and more complex processing strategies including making evaluations or questioning the veracity of the text (Alexander, 2003). Finally, interest can be thought of as individual or situational. Individual interest represents one’s commitment to the domain while situational interest is related to one’s in the moment
interest at the time of the activity. Alexander (1997, 2003) argues that these components 
are interrelated and contribute to one’s learning progression in a domain like history. 
While high school students would not be expected to reach expertise, teacher attention to 
the constructs of knowledge, interest, and processing may contribute to increased 
disciplinary learning. The texts that teachers bring to the classroom can impact students’ 
topic and situational interest and help move students from acclimation to competency. 
Researchers’ understanding of the demands of the domain of history is essential to 
understanding how one learns in this discipline.

Disciplinary literacy, or what it means to be literate in a particular discipline like 
history is a specialized component of domain learning. While domain knowledge focuses 
on the overall content knowledge of a particular domain, disciplinary knowledge consists 
of an understanding of the practices of knowledge construction, communication, and 
dissemination in a particular domain (Shanahan, 2009). In order to possess disciplinary 
knowledge, one must be able to negotiate the literacy demands of the discipline. The 
following researchers from the University of Pittsburgh have proposed a definition of 
disciplinary literacy:

*Disciplinary literacy* is based on the premise that students can develop deep 
conceptual knowledge in a discipline only by using the habits of reading, writing, 
talking, and thinking which that discipline values and uses (McConachie, Hall, 
Resnick, Raci, Bill, Bintz, & Taylor, 2006).

Engaging in disciplinary literacy requires full discursive participation within the 
community rules of a particular discipline. While discourse communities are established 
within disciplines, a major focus of disciplinary experts in their everyday practice is their
engagement with texts in their respective discipline (Shanahan & Shanahan, 2008). As a result, in order to understand disciplinary learning, it is crucial to understand the processes by which students read texts in various disciplines.

If students are to create historical meaning they need to be able to make sense across multiple texts. While there has been a large amount of research on reading across multiple texts in history (Afflerbach & VanSledright, 2001; Rouet, Brit, Mason, & Perfetti, 1996; Rouet, Favart, and Perfetti, 1997; Stahl, Hynd, Britton, McNish, & Bosquet, 1996; VanSledright & Kelley, 1995; Wineburg, 1991), this research has focused on traditional forms of text like written primary and secondary sources. Because the discipline of history as enacted in high school classrooms often makes use of multiple texts types like video, audio, and image, it is essential to draw from the work of multiliteracies.

A theory of multiliteracies emerged as a line of research in the late 1990s following the seminal paper by the New London Group (1996) which asserted that a broader conception of literacy was needed for a rapidly changing world that is imbued with increasing use of information and communication technologies (ICTs). As a result of these rapid changes, there is no single definition of what constitutes literate practice. Street (1999), argues that literacy practices are defined by the social practices that govern their use. Others have argued that new literacies change Discourses (Gee, 2003), or require new strategies and dispositions for interacting with Internet texts (Leu, et al., 2004). Still others see ICTs as creating new semiotic landscapes (Kress, 2003; Lemke; 2002) that capitalize on multimodal texts (Hull & Nelson; 2005; Kress & van Leeuwen, 1996) or multiliteracies (New London Group, 1996). When learning in a discipline like
history, students’ literate practices are impacted by the Discourses (Gee, 2003) of the historical community and are governed by multiple multimodal sources that are valued by the discipline and are also available on the Internet.

A distinction between new literacies and multiliteracies needs to be made because new literacies studies have focused on the literacies that are utilized as a result of interacting with information and communication technologies (ICTs), particularly on the Internet. Multiliteracies may or may not make use of ICTs. They do focus more on the use of available designs to transform knowledge and create new redesigned meanings that are comprised of a combination of visual, gestural, auditory, and spatial resources (see figure 1.2). The New London Group (1996) proposed that to describe any semiotic activity, three elements, available designs, designing, and the redesigned are involved. Because all text is multimodal, the theory can be applied to all texts. Available designs are the resources used for meaning making, designing is the process of meaning making with available designs, and the redesigned are the meanings that are produced and transformed through designing (New London Group, 1996). This framework guided my analysis of student meaning making when reading the multimodal texts used in this study.
The figure above represents the multimodal nature of meaning making. Audio, spatial, gestural, visual, and linguistic designs all are potential modes of meaning making that contain critical elements. For example, visual designs contain elements, like color that contribute to one’s meaning making, or what is foregrounded or conversely placed in the background. All of these designs can be integrated to create meaning in a multimodal text. The Internet has afforded access to an exponential number of multimodal sources and the nature of historical inquiry draws on resources that contain multiple semiotic potentials.

Alvermann (2002) states that effective literacy instruction for adolescents must include multiliteracies in order to create authentic learning experiences. The term
authentic describes the practices that comprise adolescents’ daily activities in and out of school (Lankshear & Knobel, 2003). Multiple literacies can be differentiated not only on the basis of the channel (visual, auditory, gestural, and spatial inputs, Mayer, 2005) and medium of communication (print, image, page, screen), but also according to discipline or subject areas like history (Unsworth, 2001). The medium refers to where the texts are located such as the Internet, in a book, on television, etc. The literacies that are enacted on the Internet, iPods, film, or television include various combinations of print, auditory, and visual sources. History in particular makes use of these multiliteracies in order to construct historical meaning. Students’ successful negotiation of these sources is essential to build strong disciplinary knowledge. In the study of history, one goal for students is to be able to understand how historical knowledge is constructed and begin to think like a historian. Since historians use multiple sources of information to make sense of history and write their interpretations of history based on those texts, students should have the opportunity to understand how those narratives are constructed. Information and communication technologies are a medium in which students negotiate meaning making through the reading of multiple texts. For this study, the theoretical orientation of new literacies is subordinate to multiliteracies because the focus is more on the multimodal nature of texts and not on the processes required to read in an online environment.

Semiotics refers to the study of the use of signs and tools to create meaning. Multimodal texts make use of multiple semiotic tools such as words and images together to create meaning that is more textured than that created by mono-modal texts. Multiple semiotic signs are not read as individual signs but as an integrated sign (Kress & van
Leeuwen, 1996). Multimodality, then has implications for new constructions of meaning in and across texts (Kress, 1998). Print text can evoke one meaning while visual text evokes another, and the two together can act synergistically to evoke even other meanings (Kress & Van Leeuwen, 1996). A visual image may elicit meanings that contradict the text or elaborate on it and vice versa. The combination of various textual modes provides a multitude of potential configurations and integrated forms of representation (Lemke, 2002). These potential configurations are multiplicative as the student works with an increasing number of texts. The focus of this study is on students’ mental processing across multimodal texts and how the use of these texts influence their historical understandings. The ways in which text, image, sound etc. come together have the potential to expand meaning making opportunities for students engaged in historical inquiry. And, because there are so many possibilities for the interpretation of multimodal texts, it is important to understand the role of multimodality in disciplinary learning rather than just assume that multimodal texts will simply improve learning.

Multimodality is not a new phenomenon, but with the advent of the Internet and other technologies, multimodal texts constitute a large amount of texts that are utilized by students.

**Statement of the Problem**

Adolescent students in the discipline of history struggle when confronted with multiple sources of texts from which they are asked to infer historical meaning. These texts can occur in the form of a textbook, a text set that is compiled by the teacher, or in an online environment where multiple sources about a given topic are digitally arranged. Students may also go on the Internet to find sources of information. Typically, student
inquiry in history is bounded by a text set within a textbook, a text set that is part of a Document Based Question (College Board, 2008), or a text set that is part of a historical digitization project. Tasks that require the reading of multiple texts usually contain primary and secondary sources that must be evaluated.

The textual resources that are available are not confined to only print-based primary and secondary sources. Textbooks are filled with pictures, maps, charts, political cartoons, and excerpts from primary source documents. Teachers often bring additional texts into classrooms that are visual in nature as well. Also, digitization projects can be utilized by teachers, and these include not only extensive archives of printed primary sources but also political cartoons, interviews of historians, and maps that intersect text and image through flash animation (J.K. Lee, 2002). Even though students use a multitude of texts and text types, they tend to treat them as single sources instead of interconnected texts.

Students who are expected to integrate multiple multimodal sources to make sense of history often struggle to do so (Manderino, 2007). The ones who struggle to make sense of multimodal sources also struggle to write about history after multimodal reading. Indeed, one can view their writing as a window into their meaning making processes. How well they integrate multiple sources in their writing is an indicator of how well they have synthesized across them to create their own interpretation rather than merely summarizing the words of the authors they have read.

I sought to answer four research questions that follow.

1) How do students use information in multiple multimodal sources to provide evidence for a position about a contested historical event?
2) How are students’ understandings of a contested historical topic influenced by the use of multiple multimodal sources of historical evidence as they prepare for an argumentative writing task?

3) What types of texts (primary source, secondary source) and modalities (audio, video, visual, print-based) are students most likely to integrate into their essays after reading multiple multimodal sources?

4) How do topic knowledge, topic interest, situational interest, and reading ability contribute to students’ ability to integrate the ideas from multiple multimodal sources?

The purpose of this chapter was to define the purpose of the proposed study, introduce the theoretical frames that guided my inquiry, and identify the questions that have emerged as a result of the introduction of visual and auditory sources to historical inquiry. The subsequent chapter will outline a representative review of the literature that guided and designed the analysis of the study. Below is a list of key terms that are found throughout the review of the literature.

**Key terms**

**Contextualization** – The ability place an event in time or space (Wineburg, 1991).

**Corroboration** – Checking the details of texts against one another before accepting them as either plausible or unlikely (Wineburg, 1991).

**Disciplinary Knowledge** – Formalized set of knowledge about how information in a discipline is created, shared, and critiqued. It also includes an understanding of how language functions in the discipline (Shanahan, 2009).
**Documents model** – The mental representations created after reading multiple texts as a result of the combination of one’s situations model and intertext model (Perfetti, Rouet, & Britt, 1999).

**Domain Knowledge** – Broad knowledge of a field of study that includes content knowledge as well as procedural and conditional knowledge (Alexander, 2003).

**Intertextual** – The network of links and potential connections made between texts (Hartman, 1995).

**Intertext Model** – The positioning of texts in relation to one another to help create a mental representation from multiple texts (Perfetti, et al., 1999).

**Intratextual** – Connections made by the reader within elements of a single text (Hartman, 1995).

**Multiliteracies** – Theory that a broader conception of literacy is needed as a result of technological proliferation and increasing globalization (New London Group, 1996).

**Multimodality** – The theory the text can include auditory, visual, spatial, temporal, and linguistic designs that create multiple meanings (Kress, 2003).

**Situational Interest** – The in the moment interest in an activity that impacts learning in a domain (Alexander, 2003).

**Situations model** – The positioning of a text in relation to one’s prior knowledge to create a mental representation of a single text (Perfetti, et al., 1999).

**Sourcing** – Judging the reliability and credibility of a source based on the authorship of the source (Wineburg, 1991).
CHAPTER 2
REVIEW OF THE LITERATURE

The purpose of this chapter is to provide an overview of the representative research that has been conducted within the theoretical frameworks of domain learning, disciplinary literacy, multiliteracies, and multimodality that were outlined in Chapter 1. The intersection of research in these areas informed the rationale and background to conduct the present study.

Disciplinary Literacy

The 2010 Carnegie Report, *Reading in the Disciplines: The Challenges of Adolescent Literacy*, suggests that adolescent literacy possesses its own set of challenges because middle and high school students read more complex expository texts that are situated in subject areas than students in earlier grades (Lee & Spratley, 2010). Chall (1983) refers to the shift from the emphasis on narrative to expository texts as a shift from “learning to read” to “reading to learn”. Many students have difficulty “reading to learn” and fall behind their peers in terms of reading achievement. One approach to improve literacy achievement across school subject areas has been to instruct students in the use of content-area reading strategies. In the quest to remediate the gaps in reading achievement in content-area subjects, literacy research has focused on strategy instruction designed to be applied in all subject areas. Researchers have developed and studied the impact of strategies that are rooted in literacy theory to apply to the study of expository texts in any subject area. These strategies include, but are not limited to, reciprocal teaching (Palinscar & Brown, 1984), KWL (Ogle, 1989), Question-Answer Relationships (Raphael, 1982), Inquiry Charts (Hoffman, 1992), Concept Oriented Reading Instruction
(Guthrie, et al., 1996), and Questioning the Author (McKeown, & Beck, 1993). Several resources have compiled a battery of strategies that are packaged for students to utilize in all of their content areas courses (e.g. Blachowicz & Ogle, 2001; Brozo & Simpson, 2006; Daniels & Zemelman, 2004). These reading strategies are well researched and grounded in literacy practices and theory. They are often applied by teachers as general strategies to be used by students across subject areas without taking into account the specific literacy demands of the subject or discipline (Conley, 2008). However, the application of generic reading strategies does not appear to help students read complex disciplinary texts. Recent National Assessment of Educational Progress (NAEP) data suggests that high school students have not improved in reading over the past 15 years (Grigg, Donahue, & Dion, 2007) nor are they very prepared to tackle the rigorous demands of disciplinary texts in college (ACT, 2006).

Recently, literacy research has focused on improving the literacy of adolescents (students in fourth grade and higher) who read expository texts within delineated school subjects. In this line of research, literacy scholars have argued that particular literacy practices are unique to each discipline (Alexander, 1998; Moje, 2008; Shanahan & Shanahan, 2008). The comprehension of the texts in a discipline is situated within these contexts. So, rather than solely advocating the teaching of strategies for reading texts that can be applied across content areas, researchers advocate the teaching of discipline-specific strategies (C.D. Lee, 2006; C.D. Lee & Spratley, 2010; Moje, 2008; Shanahan & Shanahan, 2008). To develop discipline-specific strategies, the language and literacy practices that govern a discipline need to be understood (Shanahan & Shanahan, 2008).
Content knowledge is often the primary focus of subject area classes like history. The study of history is considered an academic domain. Domain knowledge refers to the scope of an individual’s knowledge, including content knowledge, in a given field of study (Alexander, Shallert, & Hare, 1991). Alexander (1992) claims that domain knowledge consists of declarative, procedural, and conditional knowledge that are not equal across domains of learning. Domain knowledge is a specialized field of content knowledge. And, domain knowledge in history is different than domain knowledge in chemistry and both possess a broader scope of knowledge than non-academic domains. Subordinate to the more broadly construed construct of domain knowledge is the more formalized subset of disciplinary knowledge (Alexander, et al., 1991). Shanahan (2009) distinguishes disciplinary knowledge to include knowledge of how information is created, what information is valued, how knowledge is communicated, and who controls knowledge dissemination in a domain. The focus of disciplinary knowledge is not on content itself but on how readers come to make sense of content based on their knowledge of how the domain functions.

In his seminal study of historians’ reading processes, Wineburg (1991) compared the reading processes of students and expert historians. The students were highly proficient college-bound readers (SAT scores >1200) who possessed a strong level of content knowledge about the Revolutionary War. Half of the historians in the study were not experts in the field of American History. Despite a lack of content knowledge for some of the historians, all of them used their knowledge of the discipline to interpret and critique the texts they read. The historians’ high level of disciplinary knowledge allowed them to easily make sense of historical sources they were unfamiliar with. Based on the
ways that the historians approached new content within the domain of history, Wineburg (1991) proposed that historians utilize three heuristics, contextualization, corroboration, and sourcing, when reading a text. These heuristics entail a level of disciplinary thinking in the domain of history.

Contextualization refers to the ability of the reader to place events and people in time and space (Wineburg, 1991). This requires the reader to go beyond the actual words stated in the document and requires extensive knowledge of and experience with the historical subject matter (Britt & Aglinskas, 2002). Corroboration is defined as checking the details of texts against each other before accepting them as plausible or likely (Wineburg, 1991). Corroboration entails employing intertextual links to provide validity in a historical argument. Sourcing includes checking the author of the document and assessing the validity and perspective of the author. Sourcing can also refer to the perceived “trustworthiness” of the document being utilized in historical inquiry. These heuristics are examples of disciplinary knowledge.

While these heuristics are invoked for the process of reading in history, they unveil the purposes for reading in other disciplines as well. Shanahan & Shanahan (2008) found that the purposes for reading in various disciplines (history, chemistry, and mathematics) vary in relation to Wineburg’s (1991) heuristics. Historians focus heavily on author and source while chemists are more concerned with corroborating evidence, and mathematicians focus on re-reading and close reading regardless of the author (Shanahan & Shanahan, 2008). Disciplinary literacy therefore, is an approach to building the requisite disciplinary knowledge required by a given domain. Disciplinary literacy then is comprised of the cognitive literacy processes used to make meaning, the cultural
tools, including language and texts that mediate thinking, and the epistemic beliefs about knowledge and knowledge production that constitute the discipline (Moje, 2007; Shanahan & Shanahan, 2008).

Experts within the various disciplines do not make sense of single texts; rather, their interpretations of a text involve complex intertextual integrations. Whereas much research has focused on single text comprehension (Anderson & Pearson, 1984; Kintsch, 1994; RAND, 2002), it is evident that in order to engage in a discipline, readers must make meaning across multiple texts that vary in mode, genre, and structure. It follows that students, in mirroring discipline-based practices, must learn to interpret multiple texts as well.

Student meaning making of a single text, however, informs research as to the meaning making processes utilized when working with multiple texts. The frames researchers use to study comprehension vary from information and text processing to more situated and social frames. In this next section, I will discuss what research has informed understanding single-text comprehension.

**Single Text Comprehension**

Studies in cognitive science view comprehension of a single text as possessing three key components (van Dijk & Kintsch, 1983). First, the *surface text* constitutes textual features like words, sentences, and layout (Kintsch and van Dijk, 1978). Second, the *textbase* represents the meaning of the text itself. Third, even when reading a single text, the reader marshals other texts from their experience to create a mental representation of the message from the current text they are reading (van Dijk & Kintsch, 1983). From this perspective, the reader must construct a mental representation of the
text from the text itself and the prior knowledge the reader brings to the text (Kintsch, 1994). The positioning of the text in relation to one’s prior knowledge and beliefs constitutes the situation model (Kintsch, 1994, van Dijk & Kintsch, 1983). From a disciplinary perspective, the situation models that students create are integral to understanding the role of text within the discipline. The understanding of the text is shaped by the student’s beliefs and the text itself can later help the student form different beliefs.

Research on single text processing has also demonstrated, primarily through think-aloud protocols, that less proficient readers tend to stay close to the textbase, which does not allow for more complex mental representations of the text (Cote, Goldman, & Saul, 1998). More proficient readers who make self-explanations (Chi, 1994, 2000) or elaborations intratextually, develop more of a situations model about a text (Kintsch, 1994; McNamara & Kintsch, 1996). To build a strong situations model, the reader must draw on experiences from other texts. Therefore, many of the same processes for reading single texts apply to reading multiple texts.

**Multiple Text Comprehension**

Multiple text comprehension, in contrast to single text comprehension, is the reading of multiple texts simultaneously (within a given task or activity) and interdependently (Boyd & Ikpeze, 2007). While single text comprehension has predominated reading research, researchers argue that even single text comprehension elicits intertextual processes for the reader (Goldman, 2004). From both cognitive and sociocultural perspectives, texts do not stand alone either in one’s constructed mental representations (Kintsch, 1994) or through one’s previous textual experiences
Issues of text structure (Goldman & Rakestraw, 2000), considerateness of text (Beck, McKeown, & Worthy, 1995), authorial voice (Paxton, 1999), genre (Bazerman, 2000), and text type (Boyd & Ikpeze, 2007) all impact how meaning is made from texts and how that meaning is used to deepen thinking within the practices of the discipline.

Reading multiple texts differs from reading single texts largely because the purpose for reading varies. Students often read multiple texts for the purpose of coming to an overarching understanding of a particular topic that can only be achieved by reading multiple texts interdependently. A bulk of research on student reading of multiple texts has also been conducted in the cognitive sciences (Rouet, Favart, Britt, Mason, & Perfetti, 1996; Rouet, Favart, Britt, & Perfetti, 1997; Wiley & Voss, 1996, 1999; Wolfe & Goldman, 2005). These studies used the discipline of history as a context for the ways in which students process multiple texts. Perfetti, Rouet, & Britt (1999) posit that proficient readers marshal a situation model that re-presents meaning across all of the texts as a whole. In addition to the situation model, readers also create an intertext model that positions the various texts in the text set in relation to one another. Together these create an integrated documents model that creates a mental representation of the entire set of texts being read (Perfetti, et al., 1999).

Studies of multiple text comprehension situated in classrooms demonstrate that students rarely create a cohesive intertext or documents models, however (Hynd-Shanahan, Holschuh, & Hubbard, 2004; Stahl, Hynd, Britton, McNish, & Bosquet, 1996; VanSledright & Kelly, 1998). In the various studies of students reading multiple texts during classroom tasks, students lacked the cognitive and social processes to engage in
the type of disciplinary thinking that experts in the field engage in (Leinhardt & Young, 1996; Wineburg, 1991, 1998). Even the most capable students struggle to create meaning across multiple texts (Hartman, 1995; Stahl, et al., 1996; Wineburg, 1991). Stahl and his colleagues (1996) found that a group of proficient high school readers, tended to stay close to the texts they were given about the Tonkin Gulf Incident. These students did not construct complex mental representations based on the contradictory texts they read nor did they uniformly use historical thinking heuristics. While they did construct an updated situations model after reading the first two texts and added to that model after reading subsequent texts, they did not show evidence of an integrated intertext model or documents model.

According to Hartman (1995), readers make intertextual links within a passage, between passages, and with other texts with which students have previously engaged. Intertextuality refers to the complex network of links made between texts (Kristeva, 1986). When working with multiple documents in history, Hartman (1995) found that students engage in all three of these types of links, but an examination of the data showed that students make fewer intertextual links that intratextual. That is, they make connections between parts of a single text but not as many connections between texts. Students exhibit other struggles when they read across multiple texts.

**Challenges reading multiple texts.**

Sometimes knowledge gained from other texts can cloud what new texts say about an event. Afflerbach and VanSledright (2001) found the “Disney” effect--where students who watched the Disney cartoon *Pocahontas* made exogenous intertextual links to information about Jamestown. These links caused them to reinterpret the historically
accepted story of Jamestown to favor the Disney version. There are several historical myths that students draw upon when studying history (Wineburg & Monte-Sano, 2008).

The order in which texts are read may also impact a student’s interpretation. Students tend to utilize the initial textual source encountered in a given task as a basis for their historical thinking (Stahl, Hynd, Montgomery, & McClain, 1997). They update their situation model based on the reading of the initial text but do not create an integrated documents model. These naïve readings of multiple texts reflect a lack of knowledge about what evidence is credible and how credible evidence is synthesized to form deeper understandings.

Struggles with multiple text comprehension can bring a number of disciplinary issues to light. Younger students have trouble contextualizing “embedded texts” (Afflerbach & VanSledright, 2001). When reading about Jamestown, a student had trouble with the word savages. Rather than placing its meaning in the proper historical context, or recognizing the contested nature of the term, the student was defining it using its current negative connotations. Thus, she felt that the text was not credible even though it was a credible source. Lee (2005) would refer to her reading as an inability to exhibit historical empathy, or the ability to evaluate an event by using a historical lens instead of contemporary standards. Contextualization is required to avoid presentism and exhibit historical empathy.

Britt and Aglinskas (2002) contend that contextualization is dependent on sourcing. They define sources as possessing several components including author position, author motivation, author evaluation, date, and the type of source being read (Britt & Aglinskas, 2002). If a student cannot determine the source of information they
will not be able to put that information into a historical context. The converse appears also to be true, at least with younger students in middle school (Afflerbach & VanSledright, 2001). If a student cannot contextualize a source then he or she will not engage in sourcing or corroboration. Younger students also show little to no evidence of sourcing (Afflerbach & VanSledright, 2001; VanSledright & Kelly, 1998).

However, for college-aged students, sourcing plays a major role in determining the trustworthiness of texts and influences their comprehension of a set of texts (Braten, Stromso, & Britt, 2009; Rouet, Britt, Mason, & Perfetti, 1996; Wiley, Goldman, Graesser, Sanchez, Ash, Hemmerich, 2009). When asked to engage in historical inquiry, undergraduates tended to base their trust on the content of texts, whereas graduate students (who could be considered as possessing more disciplinary expertise) rated sources based their trust in document type (Rouet, et al., 1996). These same undergraduate students also place more trust in a secondary source than a primary source. More recently, studies in science have shown that students’ ability to evaluate for trustworthiness is predictive of comprehension outcomes (Braten, et al., 2009). Wiley, et al. (2009) found similar results. When they offered students use of a sourcing scaffold, comprehension outcomes increased.

For many younger students, it is difficult to organize texts according to their contexts over time (VanSledright, 1995). In his study of eighth graders, VanSledright (1995) found that students had difficulty contextualizing across sources of information at the end of the unit of study. As one student lamented, “…it was so much stuff that I learned and I would learn more stuff and…I know it’s there, but there is just so much stuff” (VanSledright, 1995).
Making sense across multiple texts is also difficult because texts can converge, diverge, or be unrelated. These differences confound the process of corroboration. Texts can be constructed as unique, contradicted, and incomplete sources (Britt & Aglinskas, 2002). A unique source may be the only source of its kind in a set of documents. For example, a picture often provides unique information. A contradicted source may be the only source to refute information among a set of documents. An incomplete source does not have enough information in it to be fully understood. These types of uncorroborated sources seem to be difficult for students to incorporate into an intertext model; they are inclined to consider all information at face value, compartmentalizing information that does not fit rather than evaluating and ultimately integrating or discarding it (Wineburg, 1991, Stahl, Hynd, Britton, McNish, & Bosquet, 1996, VanSledright & Kelley, Afflerbach & VanSledright, Rouet, Favart, and Perfetti, 1997, Rouet, Britt, Mason, & Perfetti, 1996). Afflerbach and VanSledright (2001) found that middle school students showed few signs of being able to corroborate when working with multiple sources. Their study of seven fifth-grade students not only describes the use of multiple texts in history but also explicates what happens when students interact with embedded texts, such as primary sources or poems, within a textbook. Analyzing think-aloud data, they found that, although embedded texts helped some students due to their novelty they did not always connect the texts in meaningful ways. Without scaffolding, the mere presentation of multiple sources does not improve the ability of middle school readers to make intertextual connections.

Despite the difficulties encountered in working in and across multiple texts, given scaffolded tasks, procedural facilitators, and opportunities to engage in talk about texts,
student meaning making can progress towards disciplinary expertise (Stahl & Shanahan, 2004; Wiley, et al., 2009). Writing may also help facilitate multiple text comprehension. For example, even though students struggle to demonstrate integration across texts (Hartman, 1995; Wineburg, 1991) if they are given a writing task that promotes argumentation, students can integrate information across texts for evidence of causal connectives more than if they merely construct narrative or expository essays in history (Stahl, et al., 1996; Wiley & Voss, 1996, 1999).

Even younger students are able to construct meaning across texts when done in whole class environments with teacher scaffolding regarding historical thinking (VanSledright, 2002). Teaching historical reading and thinking skills can help students increase content knowledge (VanSledright, 2002). Lee (2005) demonstrates in his study of the progression of students’ historical thinking over time that students in 3rd, 4th and 5th grades are able to utilize cause and effect reasoning, understand change over time, and interpret events from multiple perspectives in order to construct historical meaning surrounding inquiry questions. Scaffolding is necessary for students to learn these skills (Lee, 2005; VanSledright, 2002a, 2002b). Scaffolding can help students be more metacognitive about what types of historical reasoning skills to utilize and when to utilize them while conducting historical inquiry.

The Nature of Historical Inquiry

Historical inquiry requires the evaluation of multiple sources. Historians constantly work within and across multiple sources of information to create historical meaning. Historians construct information by analyzing and synthesizing multiple sources surrounding historical events. The study of history is complex due to its
inferential nature (Beck, McKeown, & Grommoll, 1989). There is no historical certainty, and the historian creates meaning from multiple perspectives. Seixas (1993b) argues for a constructivist approach to history where students need to identify events of historical significance, add, revise, or refine their understandings of the past, be able to recognize agency, possess historical empathy, and make moral judgments about the past. In order for students to engage in this type of thinking, they must become proficient in synthesizing information across multiple sources that provide evidence of the past. These sources include primary, secondary, and tertiary documents that may be written, aural, visual, or a combination. Historians typically synthesize across these types of sources in order to think in the historical frames that Seixas (1993b) describes.

Reliance on a single textbook results in a “deafening silence” that stems from the lack of an authorial voice (Paxton, 1999). Because of this, students often fail to question the authority of the texts they read. In a think-aloud study of student reading of history textbooks, Paxton (1997) found that students who read a traditional textbook with an anonymous yet authoritative author, tended to restate or paraphrase the text. In comparison, students who read a textbook with a more present author who expressed the tentative nature of history were far more likely to express personal interpretations when thinking aloud. Bain (2006) argues that the authority that students place in textbooks and teachers is very entrenched. However, he demonstrates through a case study with his own students that multiple historical texts can be used to help students question and challenge the dominant narratives of textbooks. This type of pedagogy needed to be explicit or the students tended to revert to placing more stock in the textbook (Bain, 2006).
In a study with undergraduates, Perfetti, Britt, Rouet, Georgi, and Mason (1994) had two groups each read two secondary accounts, two participant accounts, and a textbook account of the United States’ acquisition of the Panama Canal zone. One group was given two additional primary documents to read following their reading the textbook account. The second group read two additional secondary sources about the US acquisition of the Panama Canal. While both groups placed a high degree of trust in the textbook, the primary source group placed a higher degree of trust in primary sources.

A subsequent study by Rouet and many of the same researchers (1996) also demonstrated that undergraduates trusted primary sources as much as the textbook account and were able to reason with primary sources as demonstrated through their writing using primary sources and a textbook account. They argue that, “the use of contradictory historical accounts may improve students' awareness of the uncertainties of history, and reading relevant primary sources may highlight the role of evidence in historical accounts” (Rouet, et al., 1996, p. 488). The choice of multiple texts for historical inquiry matters and primary sources appear to facilitate more historical reasoning.

Stahl and his colleagues (1996) argue that, “a goal of history instruction should be for the learner to construct a well-articulated mental model of history, understanding the interconnections between various events and participants” (p. 433). The mental model that is created is then used to inform students’ overall conceptions of the past and what it means to study the past. Teaching historical thinking skills alongside content instruction provide tools to help make sense of multiple historical texts.
Nokes, Dole, and Hacker (2007) and VanSledright (2002) found that students who utilized historical thinking heuristics while reading multiple sources of information garnered greater content understanding than those who used more traditional means of studying history. Nokes and his colleagues (2007) found that explicitly using historical thinking skills with high school students statistically produced greater content learning for students who worked with multiple texts versus using a textbook. Scaffolding is necessary to teach students these skills, however (Lee, 2005; VanSledright, 2002b). Students need know what historical reasoning skills to utilize and when to utilize them while conducting historical inquiry. It would follow that students need to possess a toolkit to help them construct meaning across a variety of texts.

The nature of the discipline of history impacts the nature of activities that incorporate multiple texts. The goals of developing historical understanding, according to VanSledright (2002b), are
to a) corroborate sources by evaluating them intertextually, b) make sense of a source author’s position in a historical account while also taking into account how investigators themselves impose their own views onto what they read, and c) construct contextualized and evidence-based interpretations (p. 1092).

These goals require the use of multiple texts within the practice of the discipline of history. Without using multiple texts, the essence of the discipline is lost.

Teaching historical thinking skills does not mean training mini-historians, however. That is, students are not expected to proficiently analyze and synthesize texts like professional historians. The practice of disciplinary inquiry involves a continuum of a progression of historical thinking utilizing disciplinary literacy practices (Lee, 2005;
Lee & Ashby, 2000; Wineburg, 2001). Disciplinary literacy practices include the practices and processes by which historians make sense of historical texts. The study of history is governed both by conceptual and procedural knowledge. Lee (2005) claims these can be thought of as first and second order concepts. First order concepts, like democracy or justice hold specific meanings within the discipline of history. Second order concepts, or meta-historical thinking skills, provide a model on which to build the disciplinary practices of sourcing, contextualization, and corroboration. Examples of second order concepts are empathy, change, time, evidence, and recognition of various accounts of history. Lee (2005) posits that these second order historical concepts, “give shape to the discipline of history” (p. 41). Lee (2004) argues that younger students can use second order concepts to begin thinking historically. VanSledright (2002a) demonstrates that when presented with multiple sources of information, students have the ability to understand that the various texts represent different perspectives and they can determine their reliability.

Expert-novice studies (Leinhardt & Young-McCarthy, 1996; Wineburg, 1998) demonstrate that experts can analyze historical sources, regardless of their familiarity, by employing historical thinking heuristics (sourcing, contextualization, corroboration, empathy, perspective, etc.). Students who are asked to use those skills tend to operate at the novice end of the continuum when they read multiple texts. They are working with unfamiliar content and limited historical reasoning and reading strategies. By scaffolding instruction with multiple sources of information, students might begin to move further along the continuum to achieve greater efficacy in the use of historical thinking skills. These scaffolds include the use of second-order concepts such as evidence, temporality,
empathy, and causation, and to note change over time, which are historical reading skills (Lee, 2005). Historical reasoning skills are essential in conducting historical inquiry that utilizes the substance and content of history (Lee & Ashby, 2005). Lee (2004) argues that if we are to understand students’ development of their historical thinking, the focus should include students’ meta-historical skills as well as their substantive content knowledge.

**Challenges of Multiple Text Instruction**

While the need for multiple texts for history reading is clear, it presents various challenges for implementation. First, single history texts can be daunting to read due to their complexity or inconsiderateness (Beck, McKeown, & Worthy, 1995). Students have difficulty reading them unless they are taught explicit comprehension strategies. In addition, students need to know explicit strategies for assimilating and accommodating information from multiple texts into their mental representations (Piaget, 1980) to create new situation, intertext, and document models (Perfetti, et al., 1999). Leinhardt (1994) further argues that historical inquiry is not only about the texts that are read but also about being able to develop a rhetorical position on the subject at hand. Students need to be able to transform the meaning from multiple texts to create an interpretation. Monte-Sano (2008) found that high schools students who used multiple texts developed into more proficient writers of historical interpretation.

While studies have demonstrated the complex cognitive representations that are created when students process multiple texts, studies of students in classrooms utilizing multiple texts can also begin to elucidate how social interactions and scaffolded instruction influence that processing (Radinsky, 2008; VanSledright, 2002). Teaching
students to use multiple texts requires a conscious effort to help students learn the
discourse of the discipline of history within the social milieu in and out of the classroom.

Since multiple text instruction has been shown to benefit student’s historical
reasoning, questions remain about what text types to include. The multimedia texts that
adolescents are facile in using, such as film, pictures, and cartoons, also constitute
historical sources in several cases. Currently, the Internet is a medium that houses
historical sources that utilize multimedia formats. Understanding how students read in a
digitized environment and how they negotiate this multitude of multimodal texts can lead
to new ways of building strong disciplinary knowledge in history. Therefore, we need to
understand how students can come to integrate multiple multimodal sources to create
historical meaning. Meaning making with multiple channels of communication and
media, like what I have suggested, has been referred to as “a pedagogy of multiliteracies”

**Multiliteracies**

Multiliteracies theory draws on both sociocultural and linguistic perspectives. A
theory of multiliteracies is grounded in the notion that there are multiple paths to meaning
making. Adolescents, in particular, engage in and out of school with multiple literacies
(Alvermann, 2002). The National Council of Teachers of English (NCTE) describes new
literacies as 21st century literacies that encompass multiple ways to make meaning.
These literacies are characterized as, “multiple, dynamic, and malleable” (NCTE, 2008).
The Internet is a medium of communication that facilitates the use of multiliteracies that
make use of multimodal texts. Because these literacies are different than traditional
literacies, it is argued that reading comprehension in online environments is more
complex (Coiro & Dobler, 2007). The study of new literacies is an outgrowth of multiliteracies that focuses on meaning making with information and communication technologies (ICTs).

New literacies not only make use of multiple semiotic resources (Kress, 2004) but are also argued that their practices are different online and require different skills (Coiro, 2003; Coiro & Dobler, 2007; Leu, Kinzer, Coiro, & Cammack, 2004). This line of research has studied students engaged in online inquiry. Coiro and Dobler (2007) studied eight students who were highly proficient readers as they worked through an online inquiry task. They argue that students need to bring in more inferential reasoning to the task of reading because there is a lack of context clues online. Additionally, students need to possess prior knowledge of the use of the Internet in addition to prior knowledge of the topic (Coiro & Dobler, 2007). As a result of new technologies, the nature of literacy is rapidly shifting from traditional reading and writing to new ways of engaging in meaning making (Lankshear & Knobel, 2003; Reinking, Labbo, & McKenna, 2000).

Reading in an online environment is also complex because texts are non-linear and require navigational skill (Lawless & Kulikowich, 1998). Students often struggle to locate information or choose sources that are indexed first in a search engine like Google (Wilder & Dressman, 2006). However, students have also demonstrated that with increased prior knowledge about a topic, they make more complex navigational choices and utilize multimodalities within an online environment (Lawless, Schrader, Mayall, 2007).

Despite the challenges of reading in an online environment, the New Literacies Team at the University of Connecticut (2007) posits that in an online environment
students must locate, evaluate, and synthesize information in complex hyperlinked environments. These skills are germane to the study of history because they can benefit from the heuristics that Wineburg (1991) proposes that accomplished historians utilize when reading historical texts. Locating information can be aided by the use of the sourcing heuristic. Contextualization and corroboration can improve evaluation of resources found on the Internet. The reader needs to determine the saliency of the text within the time period and assess the validity and credibility of the author. Synthesizing online texts is much like corroborating historical sources for patterns and comparisons. It would follow that the skills necessary for reading in an online environment can also be situated within the practices of the discipline. However, the skills that students possess offline are not always congruent with the skills that readers possess online (Leu, Zawilinsky, Castek, Banerjee, Houseand, Liu, & O’Neill, 2007). Leu and his colleagues (2007) found that some students might be highly proficient readers offline but not online. They also found the converse to be true. Some less proficient readers offline were very proficient online when engaged in an Internet inquiry task. Therefore, it is necessary to study the ways students read across multiple multimodal sources online to determine what skills students use when reading in an online environment.

If new literacies are, “multiple, multimodal, & multifaceted” as Coiro, Knobel, Lankshear & Leu (2008) argue, historical sources online possess the same characteristics. Research in the ways that students make sense of multimodal sources bounded by a discipline like history situates new literacies in a particular context. In addition, Coiro & Dobler (2007) theorize that the next step in research in new literacies involve writing and
synthesis across multiple multimodal texts. First, it is important to understand how multimodal texts are unique as compared with traditional printed texts.

**Multimodality**

The study of semiotics is one that investigates the use of signs and symbols and how they communicate meaning. In the field of semiotics, multimodality constitutes the use of visual, audio, gestural, tactile, and embodied, modes of representation in combination with verbal modes that are either written or spoken (Kress, 1997). Multimodal texts make use of these multiple semiotic tools together to create potentials for meaning that are more textured than mono-modal texts. The modes or multiple semiotic signs are not read as individual signs by the reader but as an integrated sign (Kress & van Leeuwen, 1996). As students interact in and across texts, they construct new meanings (Kress 1998). Reading the text can carry one meaning while reading the image another meaning and the two together can act synergistically to create newly emergent meanings (Kress & Van Leeuwen, 1996). The action designated in a visual may contradict the text or elaborate on the text and vice versa. In history, a political cartoon often juxtaposes language with action to create an ironic or satirical message. Multimodality has been theorized in terms of its affordances for meaning making potential. Idema (2003) argues that theories of multimodality are not just interesting but are central to understanding all forms of communication.

The features of multimodal texts interact with each other to create meaning. Multimodal texts therefore are also inherently intertextual and intratextual (Walsh, 2006). That is, multimodal texts have potentials for links within the text as well as outside of the text with other texts because the presence of more than one mode creates more potential
Language and visual representation have co-evolved culturally and historically to complement and supplement one another, to be co-ordinated and integrated (Lemke, in press a). Only purists and puristic genres insist on separation or monomodality. In normal human meaning-making practice, they are inseparably integrated on most occasions (Lemke, 2002, p. 303).

Kress (2000) argues that all texts are multimodal. The ways in which we read any text, visual, audio, or printed, requires the reader to draw on their social experiences with those texts. Meaning construction is a cognitive and social process that draws on an individual’s collective intertextual links.

Multimodal texts can be differentiated on the basis of the channel and medium of communication (print, image, page, screen). The types of modes (visual, auditory, spatial) and where the text is found constitute the literacies needed to make meaning. They can also be differentiated according to field or subject area, like history (Unsworth, 2001). Disciplinary literacy practices can occur through the Internet, podcasts, film, or television and can include multiple sources and multimodalities. It is important to investigate the modal affordances of multimodal historical sources, in particular because there are several potential uses of these sources in historical inquiry.

*Modal affordance* (Jewitt, 2008) refers to the potential representations the mode can provide. Multimodal texts are historically situated, thus shaping the available design of the mode (Kress, 2003). Like any text, multimodal texts have a history of use as well as
a privilege in a given discipline. For example, historical documentaries are relatively modern and accepted interpretations of history. Therefore, it is one of several possible available designs for meaning making. Jewitt (2008) argues that the affordance of a mode is multifaceted.

Furthermore, the affordance of a mode is material, physical, and environmental. For instance, an image in the form of graphic marks on a two-dimensional surface offers different potentials for the expression and representation of meaning than the affordances of speech in the form of sounds. Physical, material, and social affordances affiliated with each mode generate a specific logic and provide different communicational and representational potentials (Jewitt, 2008, p. 247).

Additionally, Jewitt (2008) argues that no mode is purely isolated but works in conjunction with other modes. The concept of modal affordances guided the focus of the study on what modalities were most salient for students.

Drawing on the theory of systemic functional linguistics (Halliday, 1994), researchers are exploring how images are read (Callow, 2006; Unsworth, 2002). Halliday (1994) theorized that the function of language is organized ideationally, textually, and interpersonally. Theories of multiliteracies and multimodality borrow from Halliday’s systemic functional linguistics (1994) in terms of creating a method for talking about multimodal texts since they are grounded in language. Multimodal texts can also be analyzed based on their presentational, orientational, and organizational structures (Lemke, 2002). According to Lemke (2002), presentational meanings reflect what is represented on the page whether literally or abstractly. That is, texts can represent
events, people, circumstances, or processes. Orientational meanings reflect a relational
stance including point of view or values.

Visually, there is also a presumptive communicative or rhetorical
relationship in which the image mediates between creators and viewers
and projects a stance or point of view both toward the viewer and toward
the content presented in the image (Lemke, 2002, p. 304).

From the disciplinary perspective of history, orientational meanings reflect the
practices of assessing authorship and credibility of a source. Finally, organizational
meanings reflect what signs go together to make the entire text cohesive. For example, in
the political cartoon, *Vietscar*, the scar on LBJ’s chest is outlined like the country of
Vietnam but his nose is also elongated to refer to Pinocchio as if he is lying. Ultimately,
presentational, orientational, and organizational meanings are not mutually exclusive.

Presentational, organizational, and orientational meanings are parallel to Halliday’s
(1985) construction of language as being organized by ideational, textual, and
interpersonal metafunctions. Kress & VanLeeuwen (1996) theorized that students who
are taught an explicit grammar of visual design possess a way to talk about visual texts.
However, few empirical research studies exist about how students read multimodal texts.

**Studies of Multimodal Practice**

Three studies provide some insight into the role of multimodality for students.
First, Hull and Nelson (2005) in their study of digital storytelling, demonstrate the
important role written text played in the student production of a digital story called *Lyfe-
n-Rhyme*. Written word was vital to communicate meaning with the presence of images
and sound. A second study from Brazil demonstrates that student production of
multimodal texts utilized written word with comic images and song recordings. Both of these studies demonstrate that language in written form is a critical component of multimodal production, but we know far less about multimodal reading.

Boyd & Ikpeze (2007) demonstrate through a small class case study of 7th graders, ways that multimodal texts can be used to teach conceptual understandings like the 1957 integration of Little Rock High School. In this study, the authors argue that because the historical event is ill-structured (Spiro, Coulson, Feltovich, & Anderson, 2004) multiple texts are needed. The event is defined as ill-structured because of the complexity of issues surrounding racism, segregation, and discrimination that carry long histories that are not only present in the Little Rock 9 crisis. Boyd and Thompson (2008) argue that the use of multimodal sources allowed for students in this study to empathize with the abuse the African-American students faced because they could see and identify with the students through the use of a documentary. They also argue that students can read multimodal design elements like voice and gesture to add, “yet another layer of meaning making” (Boyd & Thompson, 2008). Ultimately, they argue that multimodal texts can make abstract understandings more concrete. The dearth of research in this arena makes most of the conjectures about the role of multimodality in theoretical terms. More research is needed to determine the role of multimodality of learning in a discipline like history.

**Multimodal Texts in History**

The literacy skills needed in a high school history course are both varied and complex. Perhaps more than in other disciplines, experts in history make use of multiple modalities in order to construct meaning, and students’ appropriation of multiple,
multimodal sources is critical to their participation in the larger discourse of history (Radinsky, 2008). History reading of multimodal texts is dependent upon students’ understandings of maps, charts, political cartoons, graphs, and data tables. How students negotiate multiple multimodal texts is essential for building strong disciplinary knowledge in history. Therefore, we need to understand how students can integrate various multimodal sources to create historical meaning.

It is errant, however, to assume that students will naturally, without instruction, engage with multimodal sources of texts in a way that extends disciplinary ways of thinking. Seixas (1993c) used two videos to compare student interpretation of Anglo and Native American relations. Students in that study confounded the notion of the film being accurate with being realistic. As a result, students privileged the film Dances with Wolves over The Searchers because they viewed Dances with Wolves as being more realistic.

One other study of multimodal texts in history was conducted as design experiment with twenty-one high school students using a scaffolding tool to engage in digital historical inquiry about the Civil Rights movement (Saye and Brush, 2002). While they found that students did improve in using data to support their argument, the digital scaffolds alone were not enough to facilitate increased historical thinking. The features of multimodal texts may contribute to students’ struggle to reason with a set of sources like the ones about Civil Rights.

Sourcing a visual can be difficult because the author of the source may not be explicitly present; the source and perspective must be inferred by the “visual grammar” of the photograph, video, or political cartoon (Kress & VanLeeuwen, 1996). That is, the
reader must infer meanings through the author’s combined use of symbols, pictures, and words, without the benefit of knowing how or when they were produced. Contextualization is also difficult due to lack of sourcing; the context must be inferred by the synergy between text and image and the text’s relationships to other texts or possible intertextual links. Corroboration of visual sources, printed text sources, and multimodal sources require new ways of thinking about texts and their interaction.

Emerging studies on the role of visual sources (Callow, 2006; Radinsky, 2008; Unsworth, 2002) offer insights into the integration of both written and visual texts in disciplinary contexts. While students make use of multimodal sources to create meaningful projects (Hull and Nelson, 2005; O’Brien, 1998) like digital narratives, it is unclear how students make sense of multiple, multimodal texts for historical inquiry. It is also unclear how students integrate print and multimodal texts to create meaning.

The constructs of available designs, designing, and the redesigned provide theoretical grounding for why multimodality is important to study in history. Whereas, the documents model composed of the intertext and situations model creates an analytical tool for how students read across multiple texts from the research on traditional printed text, the theoretical orientation of available designs provides a language to discuss the “textbase” of a multimodal text. Designing reflects the situations models that can be created with a multimodal text and the redesigned provides a lens for how students make sense of multiple multimodal texts. While the constructs from cognitive science (Perfetti, et al., 1999) and semiotics are not intended to be parallel, they begin to offer some ways to analyze how students read across multiple multimodal texts.
The preceding studies of disciplinary literacy, multiliteracies, and multimodality were utilized to frame the proposed study. Reading across multiple multimodal sources in history is an authentic practice in the historical community. Engagement with multiliteracies is an authentic practice for adolescents. Studying the ways multiple multimodal texts within a discipline like history impact student learning is crucial to developing a deeper understanding of the disciplinary literacies needed to make sense of complex historical texts. Research on how students make sense of multiple multimodal texts in history has largely been ignored in studies of multiple text comprehension and the specific nature of a discipline like history has largely been ignored in the research on multimodality. The goal of this study was to intersect these constructs.
CHAPTER 3

RESEARCH METHODOLOGY

The previous chapter reviewed the existing theory and research leading to this study’s questions, design, and data analysis. This chapter restates the driving research questions and outlines the context of the study and the specific research methodologies employed for data collection and analysis. Researcher stance, context of the study, research design, data collection, data analysis, and limitations will be discussed.

Overview

The research design for this study primarily employed qualitative data using think-aloud protocols (Ericcson & Simon; 1980; Hartman, 1995; Pressley & Afflerbach, 1995; Wineburg, 1991, 1998; Wolfe & Goldman, 2005) and semi-structured interviews. Additional data included descriptive statistical data drawn from Likert-scale survey items and student written essays. Research questions were formulated to guide and bound the design of the study. The four research questions investigated in this study were:

Research Question 1 - How do students use information in multiple multimodal sources to provide evidence for a position about a contested historical event?

Research Question 2 - How are students’ understandings of a contested historical event influenced by the use of multiple multimodal sources of historical evidence as they prepare for an argumentative writing task?

Research Question 3 - What types of texts (primary source, secondary source) and modalities (audio, video, visual, print-based) are students most likely to use in their essays after reading multiple multimodal sources?
Research Question 4 – How do topic knowledge, topic interest, situational interest, and reading ability contribute to students’ ability to integrate the ideas from multiple multimodal sources?

To investigate these questions, a bounded Internet-based task was designed to investigate a central historical question about American involvement in the Vietnam War. The central historical question posed to fifty-one students follows. “Was President Johnson justified in asking Congress for a resolution for war after the Gulf of Tonkin incident?” To provide information for students to formulate an answer to this question, a website was created using Google Sites that included eight multimodal sources about the United States’ involvement in the Vietnam War surrounding the Gulf of Tonkin Incident in 1964. The website contained an introduction text and introduction video, two audio files, two embedded videos, and two images that provided information addressing justification for US involvement in the war circa the Gulf of Tonkin Incident (see Appendix H). The main page of the site provided the central historical question and links to each of the eight sources. Each source was embedded into its own page and listed the author, the source, and the date of publication at the top of the source. Students could navigate the site in any manner they chose after reading the introduction text and watching the three-minute introduction video.

After reading each source, students recorded usefulness and trustworthiness ratings on a five-point Likert scale. The rating scale was created through Google Forms and embedded into the website. Responses were imported into an Excel spreadsheet. Students also recorded an open-ended response to explain their usefulness and
trustworthiness ratings. Lastly, students recorded an open-ended response to the question, “Has your opinion changed? Why or why not?”

At the end of the task, students were also asked to rate all of the documents cumulatively for usefulness and trustworthiness on a separate embedded Google form. Again, results were imported into an Excel spreadsheet. In addition to ranking all eight sources, students selected the most and least useful sources and the most and least trustworthy sources. Finally, students rated their interest in the topic of the Gulf of Tonkin and their interest in the task they just completed.

To analyze student interactions around the task, multiple methodological tools were required. To answer the first two research questions, eight students were selected from two intact American history classes taught by the same teacher in a single high school in the metropolitan area of a large midwestern city. Think-aloud protocols (Ericsson & Simon, 1980; Pressley & Afflerbach, 1995) and semi-structured student interviews were employed with all eight students. All think-aloud and interview data were video/audio-recorded and transcribed in full. To investigate the third and fourth research questions, 43 students from the same two intact classes engaged in the same task as the think-aloud participants over the course of a 45-minute class period for three days. These students participated in the online task the first two days and wrote a response to the central historical question in the form of an essay on the third day.

The design of the study included several components that will be explicated in the following sections. First, a general description will be given about the project as a whole including the researcher stance and the context of the study. Second, the design of the study is discussed focusing on topic and text selection, sampling, materials, and task
measures. Finally, data collection and data analysis will be addressed at the end of the chapter with their limitations addressed in turn.

**Researcher Stance**

As the principal investigator of this study it is important to note my background and relationship to the research site. I have been a high school history teacher for the past fourteen years and, more specifically, an American History teacher throughout my entire tenure. While teaching several history and social studies courses, I have emphasized the use of multimodal sources as well as utilized multiple texts to guide instruction. As a result of my own students’ struggles with multiple text synthesis, I have been interested in how students make sense across multiple texts. Students’ struggles with integrating and synthesizing multimodal texts in their writing have driven me to research how students make sense of multiple multimodal texts.

Although I was a United States History teacher for seven years at the school where the study was conducted, the study did not include students in the classes I was teaching. I taught only three of the 51 students the previous year in a sophomore political science course. These three students were not think-aloud participants. The year that the study was conducted, I taught two advanced placement United States history courses, one college prep United States history course, and two honors political science courses. I chose to study students reading multiple multimodal texts in United States history for a number of reasons. First, United States history is a required course of all students, and the course is populated by students with the greatest cross section of reading ability as measured by the ACT. Second, due to the nature of the curriculum, United States history provides the greatest opportunities for students to work with text sets and multimodal
sources of historical evidence. It is also explicitly positioned as a history course rather than a social studies course. Finally, I have the greatest knowledge of the subject as compared with other subjects in the discipline of history. My experience with the United States History curriculum was invaluable in designing the task for high school juniors.

Whereas sense making around multiple texts has been a focus of research in cognitive psychology, sense making is also dependent on the social and cultural context in which it is occurring. In this study, the discipline of history is viewed as a culture. That is, it has unique ways of learning, producing, and communicating historical knowledge that distinguish it from other disciplines. History instruction also has a unique history that does not necessarily match the discipline itself (Sexias, 1993a), and high school history instruction is different still from the instruction of history at the university level. Because the vast majority of high school history instructors do not engage in historical scholarship, they see history differently than historians. The development of advanced placement United States history in 1955 has attempted to bridge that gulf between instruction in history and historical scholarship, to a degree, by creating text sets called Document Based Questions that lend themselves to historical inquiry of a bounded topic through the use of multiple texts.

There has been a trickle effect of bounded historical inquiry into non-advanced placement history courses as well. More recently, scholars from Stanford University have developed the Reading like a Historian program (http://sheg.stanford.edu/?q=node/45) that contains seventy-five lessons designed around central historical questions that employ multiple sources of information. Advanced placement history courses and the
Reading Like a Historian program highlights the curricular thrust to mirror the disciplinary practices of historians in a scaffolded high school environment.

Curriculum developed with the intention of eliciting historical thinking practices often contains more than traditionally written primary and secondary sources. This type of curriculum often incorporates visual sources such as maps, graphs, and political cartoons. And as the use of the Internet proliferates in schools, students have access to an increasing array of multimodal texts such as video and audio as well. Sources such as the Northern Illinois University digitization projects (http://dig.lib.niu.edu/) and The Presidential Timeline of the Twentieth Century (http://www.presidentialtimeline.org/) are exemplars of historical inquiry projects that utilize rich multimodal texts such as images, video, and audio files.

The students who read these multimodal sources have all had experience using technology and reading multimodal texts. Yet the discipline demands a way of thinking about multiple multimodal sources that does not mesh with students’ everyday thinking and experiences. Therefore, this study used the lens of disciplinary literacy (Moje, 2008, Shanahan & Shanahan, 2008) as enacted in the high school history curriculum, to investigate how students’ knowledge of and interest in the discipline influenced meaning making across multiple multimodal texts for the purpose of historical inquiry. Getting at this aspect of students learning necessitated using think-aloud protocols and semi-structured interviews; that, along with survey data, shed light on students’ predispositions about multimodal texts as well as the processes they exhibited when reading, evaluating, and selecting multimodal texts to answer a central historical question like, “Was
President Lyndon Johnson justified in asking Congress for a resolution for war following the Gulf of Tonkin Incident?”

Research Site

The next section describes the context in which the study was conducted in the spring semester of 2009. The community, school, teacher, and two classes involved in the study are described.

Community

The school community in which the study took place was located in the metropolitan area of a large midwestern city. It included two large comprehensive high schools in a single district. The surrounding community was working class, recently welcoming several immigrant populations, especially from the state of Durango, Mexico. Some businesses were Spanish speaking, and the community embraced its diversity. Across the two high schools in the district, thirty-one different languages were spoken in the homes of its students. Economically, several large industrial parks, factories, and a major international airport made up the backbone of the community that collars the city.

School

The study was conducted towards the end of the spring semester in the high school in which I taught. The school was one of two schools in the district, and they shared a common curriculum as well as common athletic programs. The school served ninth through twelfth grade students from four small communities. The enrollment of the school at the time of the study was 1800 students. More than one-half of all students self-reported speaking Spanish at home. The school had a low-income rate of 13.4% and a dropout rate of 6.1%. The participants in the study were mainly Latino, comprising 65%
of the student body. The average ACT Reading score for the school was 19.2. The students in this study were drawn from two classes that represented the widest range of students in terms of demographics and achievement as measured by the ACT.

Teacher.

The teacher of the students in this study was in his second year of teaching, and taught the two U.S. History classes from which the students were drawn. The teacher received excellent ratings on his teaching performance during the previous and current year from three separate administrative evaluators, including the Principal and department chair for Social Studies. The teacher followed the district-wide United States History curriculum that emphasized the use of multiple texts to engage in the study of U.S. History. In terms of his teacher preparation, he specialized in American History and also took a content-area literacy course during his undergraduate education. In addition to bringing multiple text types into his classroom, the teacher utilized Document Based Questions and writing assignments in his classes. During the second semester, the teacher noted that he utilized YouTube video clips for his class as well as several photographs and political cartoons that were projected to the entire class. His classes engaged in one YouTube lesson where the students searched for banned cartoons from World War II on their own. Outside of that assignment, text selection and text analysis was guided by the teacher in a whole class format. He brought music into his lessons occasionally as well. Despite the relative lack of student controlled choice of texts, the teacher was at the forefront in the department for utilizing multiple multimodal sources like short YouTube clips, political cartoons, and images to engage students in historical analysis.
Classes.

United States History was chosen as a topical area of historical inquiry because it is requirement for graduation in almost every high school in the United States. While other subjects like World History or Economics are worthy of study as well, the scope and sequence of those curricula vary greatly among schools as well as states. United States History contains the most consistent curriculum regardless of school or state.

The two classes selected for the study were tracked classes. The first class was named as a College Prep class but included students from the 5th percentile to 60th percentile in terms of reading achievement as measured by the ACT. The average ACT reading score for this class was 16.6. The second class was an Honors course, one of two total sections of Honors courses for the 400 students comprising the junior class. Students in this class typically were college bound. They had an average ACT score of 23.1. The school average for reading as measured by the ACT was 19.2. The average ACT Reading score for the state was 20.8.

In addition to the differences in ACT Reading scores, the College Prep and Honors classes differed in the type of learning activities and assessments they received. The teacher reported focusing more heavily on writing and working with documents in the Honors class than in the College Prep class. Additionally, assessments in the Honors class were almost exclusively short answer and essay questions whereas the College Prep class took more multiple-choice assessments. Both classes took the same midterm and final exam and covered the same scope and sequence of content.

The courses were a two-semester survey of American history from the Constitutional period in 1781 to the present. Major units of study during the first
semester included the New Nation, Jacksonian Democracy and Manifest Destiny, the Civil War and Reconstruction, the Age of Industrialization, and the Age of Imperialism. The second semester focused on the Twentieth Century with major units of study including World War I, the Great Depression and New Deal, World War II, the Cold War, the Civil Rights Movement, the Vietnam War, and Watergate to the Present. There were four common assessments, two per semester, shared by all teachers throughout the year. The entry point for this study was the first day of the Vietnam War unit.

**Research Procedures**

The following section discusses the study procedures with the participants from the school context described previously. Procedures discussed include the topic chosen for inquiry, text selection, pre-task measures, sampling, and materials utilized.

**Topic**

The study was started in April at the beginning of the Vietnam War Unit. This unit of study followed the Civil Rights Movements from 1954-1975. The Vietnam War unit was taught towards the end of the second semester and students had multiple opportunities throughout the yearlong course to interact with multiple texts in a teacher selected set of texts about topics concerning Abraham Lincoln, Reconstruction, and World War II. Students interacted with a greater amount of video, audio, and images during the second semester of study. The types of multimodal texts that were common were YouTube clips, teacher selected clips from DVD, historical photographs, and political cartoons. The teacher usually projected these multimodal texts to the entire class using an LCD projector.
More specifically, the topic of study was the Gulf of Tonkin Resolution during the Vietnam War era. There are several reasons this topic was chosen. The topic of the Gulf of Tonkin Resolution had been previously studied with high school students (Stahl, Hynd, McNish, & Bosquet, 1996) and college students (Hynd-Shanahan, Holshuh, & Hubbard, 2004). As a result, I was able to utilize parallel texts that were multimodal in nature. The text propositions and text connections are described in Appendices B & C.

Second, the topic of the Vietnam War often generates high interest so that the students will persevere with the task. Finally, the topic is taught towards the end of the school year, which ensured that students had multiple opportunities to engage in historical thinking tasks and work with a variety of text types prior to participating in the study.

Text Selection

The texts that were utilized in this study are categorized as one of the following type of historical source: participant account, primary source, historian account, or commentary. The text set also consisted of various text types: two videos, two audio recordings, a political cartoon, and an image (see Appendix A). The introduction text gave a general overview of the background of the Vietnam from World War II to 1964. The introduction video was taken from a CBS’ Sixty Minutes episode in 1970. The videos consisted of a clip from the Academy Award winning documentary, The Fog of War. The second video was a recording of President Johnson’s speech near midnight on August 4, 1964. The two audio recordings were phone calls that were recorded between the President and two of his advisors. The first phone call was recorded in the morning of August 4, 1964 between Secretary of Defense Robert McNamara and President Johnson. The second phone call was recorded between National Security Advisor
McGeorge Bundy and President Johnson three months prior to the Gulf of Tonkin Incident in May of 1964. The first image is a photograph of the vote tally of the Senate in determining the Gulf of Tonkin resolution that authorized the use of force in Vietnam. The second image was a political cartoon named *Vietscar* that depicted Johnson showing a scar on his stomach that was in the shape of Vietnam.

The purposes for constructing a text set that contained these characteristics were to determine the saliency of the different types of sources used by students and discover which modalities elicited greater integration into the students’ overall argument. For example, what source or sources will a student choose among contradicted sources? Does a student choose a written or visual source to integrate into their overall historical argument?

The sources were organized by two criteria; text type (audio, image, or video) and the propositions made by the sources. Text types were equally balanced between audio, image, and video sources. The text propositions served to ensure that there were both corroborating and contradictory sources. The use of multiple sources and multiple text types provided opportunities to see what text types students found the most salient based on the evidence provided and triangulated with student usefulness and trustworthiness ratings. Appendix A describes each source by the type of source (primary, participant account), the text type (audio, image, video, text) and type of evidence (unique, contradicted, corroborated, incomplete). That is, some texts contained unique pieces of information not found in the other texts while some texts contained information that was found in other sources. Some texts contained information that contradicted information from other texts and some texts had information that was missing or unstated.
The texts were chosen and categorized in a way that allowed for the researcher to determine where the evidence came from that supported the students’ claims. According to Perfetti, Rouet, and Britt (1999), the intertext model of representation explains the relationship between multiple texts. The situations model represents a mental model the reader creates about the multiple possibilities of both real and potential meanings of each text. When the intertext and situations model is combined, an integrated documents model is formed (Perfetti, Rouet, & Britt, 1999). The text set used in this study is mapped according to the propositions each text presents and the situations model across the six main texts (see appendix B & C). In the text set, some texts concerning the same topic had concurrent propositions while other texts of different types (video vs. print based text) contained similar propositions. Mapping the proposition served to identify which text types were most salient for students.

**Sampling**

Fifty-one students comprised the overall sample for the study. Students were drawn from 2 intact classes all taught by the same teacher. The overall sample was representative of the largest portion of the student body in terms of student achievement on ACT reading scores. From the sample of 51 students, volunteers were solicited to participate in the think-aloud interview condition. From a group of 15 volunteers, eight students were purposively sampled to represent a range of reading ability as measured by their practice ACT scores that were taken during the junior year. The 8 students who were selected as participants in the think-aloud condition worked on a separate task about the assassination of John F. Kennedy while the remaining 43 students completed the
online Gulf of Tonkin task. Below is a profile of the participants in the think-aloud interviews.

**Table 3.1 Think-aloud Participant Profile**

<table>
<thead>
<tr>
<th>Name (pseudonym)</th>
<th>Course</th>
<th>ACT score</th>
<th>Gender</th>
<th>Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annika</td>
<td>College Prep</td>
<td>16</td>
<td>Female</td>
<td>Latina</td>
</tr>
<tr>
<td>Beatriz</td>
<td>College Prep</td>
<td>16</td>
<td>Female</td>
<td>Latina</td>
</tr>
<tr>
<td>Bianca</td>
<td>Honors</td>
<td>19</td>
<td>Female</td>
<td>Latina</td>
</tr>
<tr>
<td>Brad</td>
<td>Honors</td>
<td>24</td>
<td>Male</td>
<td>White</td>
</tr>
<tr>
<td>Jovany</td>
<td>College Prep</td>
<td>18</td>
<td>Male</td>
<td>Latino</td>
</tr>
<tr>
<td>Miguel</td>
<td>College Prep</td>
<td>27</td>
<td>Male</td>
<td>Latino</td>
</tr>
<tr>
<td>Michele</td>
<td>Honors</td>
<td>31</td>
<td>Female</td>
<td>White</td>
</tr>
<tr>
<td>Richard</td>
<td>Honors</td>
<td>28</td>
<td>Male</td>
<td>White</td>
</tr>
</tbody>
</table>

**Materials**

The materials utilized in this study consisted of pilot tested pre-task measures that included the prior knowledge assessment and the text type, historical subject, and historical topic survey (see appendix G). Other instruments included the digital texts housed on a *Google* website (see appendix H), the argumentative essay prompt, think-aloud protocol directions (see appendix D), semi-structured interview questions (see appendix E), and a rubric for scoring text integration (see appendix I). Collected materials included the prior knowledge assessment, survey, audio and video recordings of
the think-aloud interviews, audio and video recordings of the whole class sessions, and the final essays.

**Pre-task Measures**

Prior to the whole-class and think-aloud tasks, a series of pre-task measures were taken using pencil-and-paper tasks given to the 43 students in the two U.S. History courses as well as the eight think-aloud participants in order to measure students’ prior knowledge, topical interest, and interest in audio, image, traditional, and video text types. Two pencil-and-paper tasks began the study. The purpose of the pencil-and-paper tasks was to account for variables that may influence student integration of multiple texts in their reading. The first pencil-and-paper task measured student interest in various text types (text, video, image, audio), interest in various historical subjects (political science, US History, World History) and historical topics (World War I and II, the Vietnam War). A survey consisting of forty-three questions was administered to students prior to the task. The survey contained 22 questions about text type, 5 questions about historical subjects like American History, World History, or Geography, and 16 questions about historical topics like the Vietnam War, the Civil War, or presidential decisions. The scale for the survey was a five point Likert scale that measured interest from 1 (not interested) to 5 (extremely interested) (see appendix G).

The second pencil-and-paper task measured students’ prior knowledge of the topic of the Vietnam War. The task was an open-ended response, which asked students to write down everything they knew about the Vietnam War. The open-ended response was then scored for the number of individual knowledge units (Stahl, Hynd, Britton, McNish, & Bosquet, 1996). These knowledge units, or statements, clauses, or phrases
that provide evidence of topic knowledge were coded for acceptable historical interpretations of the Vietnam War and counted, yielding a score. For example, the following would consist of two knowledge units. “The Vietnam War was fought to end communism in Southeast Asia and lasted several years.” The two units would be the reason to fight and how long the war lasted. This measure was used to account for any differences between students and help answer how prior knowledge contributed to student integration of texts.

Both pencil-and-paper tasks were administered to the 51 students during the two US History courses in the spring semester prior to instruction of the Vietnam War unit of study. Scores on the survey were used to detect differences between the ways students integrated the different types of sources like video, image, and audio and what they reported as preferred sources. Second, the survey data for text type was compared with trustworthiness and usefulness ratings of the individual sources to examine if students modality preferences impacted their usefulness and trustworthiness ratings. The survey responses for historical subjects and topics were used to detect potential differences between task performance and self-reported interest.

Data Collection

Verbal Protocols

Think-aloud protocol analysis (Ericsson & Simon, 1980) has the advantage of shedding light on the conscious cognitive reading processes of a particular reader. This method has been used in several studies of the reading of multiple texts about a historical topic (Hartman, 1995; Wineburg, 1991, 1998; Wolfe & Goldman, 2005). Two types of think-aloud protocol analysis can be utilized to uncover the conscious cognitive processes
as readers; concurrent and retrospective. Concurrent protocol analysis (Ericsson & Simon, 1980) seeks to reveal the short-term memory of the reader without being prompted to recall what was being thought about. It is meant to give a clearer picture of cognition that transpires as the reading occurs. However, obtaining more valid data from less capable readers may require directives to stop and think (Pressley & Hilden, 2004). Therefore, retrospective think-aloud protocols are critical as well for some students working with particular types of texts. Additionally, think-aloud protocol analysis has been utilized for reading processes of new literacies and in Internet environments (Coiro & Dobler, 2007; Leu, et al., 2007). Pressley and Cho (2009) argue that verbal protocols are well suited for research with multiple texts and readers reading in Internet environments.

Because this study is about multiple texts in an online environment, think-aloud protocols were employed as the methodological tool for exploring the reading processes of students as they read multiple multimodal texts. Since there was a range of reading ability and low prior knowledge of the topic, concurrent and retrospective protocols were deployed to capture the greatest amount of cognitive processing that may have occurred during the task. And while think-aloud protocols are not a measure of student cognition, but represented cognition (Hartman, 1995), they do provide insight into the multiple text reading processes of multimodal texts that have yet to be studied.

Think-aloud interview sessions occurred over a three-week period and lasted approximately between two and two-and-a-half hours each. All think-aloud and interview sessions were conducted as pullouts from class, study hall, or after school in a classroom setting. Sessions were audio/videotaped as students worked through the texts.
and were subsequently transcribed. Initially, students in the think-aloud condition were given a brief session to practice the think-aloud protocol. Texts contained the same formats (video, audio and image) but the content was about the assassination of John F. Kennedy. The think-aloud protocol prompted students to begin thinking aloud at prescribed points. Some researchers posit that low-level readers benefit from a visual cue to think-aloud (Crain-Thorensen, Lippman, & McClendon-Maguson, 1997). Since the sources were multimodal, like political cartoons, videos, or photographs, I prompted students to think-aloud if the student was not thinking aloud. A sample prompt was, “Please tell me what you are thinking now.” Initial instructions were read to the student (see appendix D). Following the think-aloud protocol, an immediate follow up semi-structured interview occurred with the student (see appendix E). This provided the student an opportunity to reflect on the entire set of texts as well.

Whole Class Task

The 43 students from the two intact classes participated in the task over the course of a three-day period. I introduced the task and conducted the two classes during the three days. The teacher delivered a lesson on the background of the Vietnam War up until the Gulf of Tonkin Incident in 1964 the previous class period. Students worked through the task housed on a Google Site using a laptop computer and a set of headphones. I introduced the purpose of the task and the protocol for completing the task. Over the course of two days, students worked independently through the website and recorded their usefulness and trustworthiness ratings and explanations on the Google Form that was embedded on each web page. Additionally students recorded whether their initial opinion had changed and why or why not. When the students had read all of
the documents, they completed the final rating survey of all eight documents in order of
usefulness and trustworthiness and selected the most and least useful and most and least
trustworthy sources. This survey was embedded on a separate web page that was
hyperlinked to the main web page. Additionally, students rated their interest in the topic
and the task. All of the Likert-scale data was collected and imported through Google
Forms and analyzed using SPSS. Finally, on the third day of the task, students wrote
their essays in response to the central historical question; Was President Johnson justified
asking Congress for a resolution for war following the Gulf of Tonkin incident? Essays
were handwritten and collected. The reason for handwriting the essays was to continue
the practice that was a part of the course throughout the year. Out of the 43 students, 41
students completed all of the Likert-scale ratings and 35 finished the task and wrote an
essay. Thirty-one students had a complete set of data between the essay and all of the
usefulness and trustworthiness ratings. The 8 students that did not complete the task
were absent at least one of the three days the task occurred.

**Data Analysis**

**Verbal Think-aloud Analysis**

The 8 think-aloud interviews were transcribed in full, read multiple times, and
coded using the computer software, HyperRESEARCH (Researchware, 2009). Think-
aloud protocols were utilized to uncover the conscious reading processes that were
exhibited by students but not visible through writing or other paper-and-pencil tasks.
Pressley and Afflerbach (1995) suggest that several conscious processes of reading are
reflected in verbal protocols. To guide the uncovering of conscious processes of reading
multiple multimodal sources, previous research that utilized think-aloud protocols guided
the coding structure (Hartman, 1995; Hynd, 2003; Pressley & Cho, 2009; Wineburg, 1991, 1998; Wolfe & Goldman, 2005). Each of the previous studies employed think-aloud codes for students reading multiple texts about a historical topic. These studies drew on think-aloud protocols as students or experts read across multiple texts that consisted of traditionally written primary and secondary sources. Whether tracing intertextual connections (Hartman, 1995), historical thinking processes (Wineburg, 1991, 1998), or cognitive reading processes (Wolfe & Goldman, 2005), all four studies used an idea unit or an utterance as the unit of analysis. That is, individual statements were parsed based on their reference to a single idea or type of processing. The unit of analysis for the think-aloud protocols, in this study, was most consistent with Wolfe and Goldman’s (2005) comments and events. A comment was defined the entire burst of speech that followed student reading. An event is defined as a unit of speech that represented a distinct type of reading process. Following transcription, the think-aloud data was parsed into comments and events. Across over 200 pages of transcripts, 1,006 events were parsed. Once parsed, the event units were coded for historical thinking, reading processes exhibited, and the location of the event.

For example, the following is a comment from one of the think-aloud interviews while the student was viewing the introduction video. “Why would such a small navy even attempt to attack such a large navy, I mean I would imagine that they are outnumbered. You couldn't, it may have been to distract them or what not.” This comment is parsed into three events. The first event is “Why would such a small navy even attempt to attack such a large navy?” The second event is, “I mean I would imagine that they are outnumbered.” The third event is, “You couldn't, it may have been to
distract them or what not.” These events were then coded according to the scheme described below.

Analysis of transcriptions initially utilized constant comparative analysis (Glaser & Strauss, 1967). That is, codes for the types of decisions students used when reading the sources and the ways students integrated multiple texts were created and refined based on reading and re-reading all transcripts. Open coding gave an overall picture of the types of comments and events students made. What emerged as a result of this process was that there were several layers of historical thinking that were being demonstrated. As a result of this open coding, the think-aloud interviews were coded at 3 levels (see Appendix F). The first level of coding addressed the depth of historical thinking (Reisman, 2010; Wineburg, 1991). The coding scheme utilized a progression of historical thinking from unsophisticated value based statements and generic sense making statements to historical analysis that draws on student use of Wineburg’s heuristics (1991) of sourcing, contextualization, and corroboration. The final level of historical thinking was coded as historical analysis. If a student employed one or more of the historical thinking heuristics and made a direct follow up statement or evaluation, the code of historical analysis could be applied (see appendix F).

The second level of coding marked the specific literacy processes that occurred within the level of historical thinking (Afflerbach & Cho, 2009; Pressley & Afflerbach, 1995). These codes were mapped to provide insight into the generic literacy processes that students exhibited while engaged in the task. They were nested within each of the 6 historical thinking codes. The purpose of these codes was to provide insight into the types of literacy processes employed by students during their historical reading/thinking.
Codes included agreeing or disagreeing with the author, historical actors, or situations, asking clarifying questions, paraphrasing, evaluation, elaboration, making predictions, and summarizing.

Finally, think-aloud comments were mapped for the textual location: local, intratextual, intertextual, and global. The site and reference of the utterance determined the textual location. For example, when a student made a think-aloud utterance, it was mapped to be *local* if the utterance referred to what was previously read only. An utterance was mapped as *intratextual*, if the utterance referred to the current text being read but prior to the most previous think-aloud utterance. The *intertextual* code was used for a think-aloud utterance that referred to a previous source or prior knowledge and the *global* code was used for an utterance that referred to the entire text set or the task as a whole.

The purpose for using a nested coding scheme was to be able to identify the types of literacy processes that occur within levels of historical thinking and map the textual locations of those thinking and reading processes. This coding system provided a layered picture of the reading processes students exhibited as they read different types of multimodal texts. The codes provided clues to the ways students think historically by using sets of literacy practices. In addition to the codes, student usefulness and trustworthiness ratings of each source were utilized to triangulate the think-aloud data.

**Trustworthiness and Usefulness Data**

The data collected from student usefulness and trustworthiness ratings after reading each source were entered into SPSS and coded for each text type. Individual means were collected to provide descriptive data and provide evidence for the sources
that students found to be most trustworthy and useful. Trustworthiness and usefulness ratings were then subjected to Pearson product-moment correlations. Four history teacher experts also rated the texts for usefulness and trustworthiness. A one-way ANOVA was conducted to detect differences in ratings between each class and the teacher experts.

Additionally, student explanations of their trustworthiness and usefulness rating were transcribed and compiled for open coding (Glaser & Strauss, 1967). That is, students’ explanations were read several times to generate themes that emerged. Once themes emerged, student statements about usefulness and trustworthiness were coded according to those themes. The themes that emerged from the student explanations of trustworthiness and usefulness of the sources were then utilized to provide qualitative explanations to the descriptive and comparative data across each text type.

**Essay Data**

Thirty-five essays were completed by the end of the three-day task and were assigned a coded number. The essays were segmented into propositions (Britt & Aglinskas, 2002) and scored for their references to one of the three types of text: audio, video, and image. The number of texts referenced, either explicitly or implicitly, within the essays was also tabulated. Essays were tabulated for use of the sources and then compared with the usefulness and trustworthiness ratings so that student rankings could be compared with their actual integration of those sources in their writing.

Essays were scored holistically for their historical reasoning and historical argumentation based on a rubric (Monte Sano, 2008) that had been used before to score essays (see Appendix I). Each essay received two separate scores. A second rater scored
50% of the essays. After interrater reliability reached 90%, I scored the remaining essays. Scores from each group were compared using an independent samples t-test. Using Analysis of Covariance (ANCOVA) with the essay score as the dependent variable, the class as the independent variable, and the ACT Reading test score as the covariate, College Prep and Honors students were compared. The first ANCOVA measured historical reasoning scores and the second ANCOVA measured historical argument scores.

Finally, essays were coded for source integration. An essay was scored as integrated if it combined ideas from multiple sources. Like the think-aloud codes, if a student generated self-explanations around multiple sources of information, the essay was scored as integrated. Essays that listed multiple sources but did not combine ideas were scored as listed. Again, like the think-aloud codes, if students paraphrased or quoted directly from the text and did not combine ideas, the essay was scored as listed. The number and types of sources referenced in the essay were compared with whether the essay scored as integrated or not integrated.

The next chapter will discuss the overall findings to the four research questions utilizing the data analysis tools described in this chapter.
CHAPTER 4
DATA ANALYSIS

The previous chapter outlined and detailed my methodological rationale and the steps in my research design. In this chapter, I provide an analysis of the results of the data collected from 51 students. The data analyses are organized to parallel my research questions. The analyses focus on the ways that students read across multiple multimodal sources, how those sources influenced students’ historical thinking, how students used multiple multimodal sources to write a response to a historical inquiry question, and how individual learner characteristics influenced the ways students responded to the overall inquiry task. The subsequent chapter provides an in-depth presentation of two case studies that exemplify the data analyses presented in this chapter. This chapter will analyze the data collected for each of the following four research questions in turn.

Research Question 1 - How do students use information in multiple multimodal sources to provide evidence for a position about a contested historical event?

Research Question 2 - How are students’ understandings of a contested historical topic influenced by the use of multiple multimodal sources of historical evidence as they prepare for an argumentative writing task?

Research Question 3 - What types of texts (primary source, secondary) and modalities (audio, video, visual, print-based) are students most likely to integrate into their essays after reading multiple multimodal sources?
Research Question 4 – How do topic knowledge, topic interest, situational interest, and reading ability contribute to students’ ability to integrate ideas from multiple multimodal sources?

Research Question 1

Eight students engaged in think-aloud protocols while reading multiple multimodal texts as well as a follow-up semi-structured interview. Analysis of the findings for each level of coding; historical thinking, reading processes, and location, will be discussed in turn. A full description of all codes with examples from the think-aloud interviews is found in Appendix F.

Historical Thinking

Student evidence of historical thinking was the first level of coding applied to the think-aloud data. It was expected that students would demonstrate varying degrees of historical thinking during the think-aloud protocols. Coding was based on a continuum of complexity in historical thinking. Codes were drawn from previous research on historical thinking (Reisman, 2010, Wineburg, 1991). These codes described historical reasoning on a continuum from least complex to most complex. The codes included value-based statements, sense making or mentalization, sourcing, contextualization, corroboration, and historical analysis. Value-based statements included speech events that contained a comment about the author, a historical actor, or a historical event with no reference to text or evidence. For example, “well that was really stupid”, would be an example of a value-based statement. Sense making or mentalization included speech events that utilized general reading process or behaviors to make
sense of the text. Examples included making a prediction, summarizing, re-reading, making an inference, quoting the text, making an evaluation, and making an elaboration upon an evaluative statement. These speech events could contain complex reading processes but did not specifically utilize historical thinking to make sense of the text. An example would include, “Maybe they weren't really fired at and they mistook the attack.”

Sourcing, contextualization, corroboration, and historical analysis were the other four levels of historical thinking codes. Sourcing, contextualization, and corroboration are thinking heuristics employed by expert historians (Wineburg, 1991). Sourcing is the act of checking the reliability, trustworthiness, and authorship of a particular source. Because students were prompted to rate the sources for usefulness and trustworthiness, this heuristic followed next in the continuum of historical thinking and was viewed as more likely to occur since prompted. Contextualization was coded as the fourth level of historical thinking. Contextualization is the act of placing a document in a time for reference against other sources. All of the documents contained date information. Corroboration was next in the continuum because there were no explicit markers to engage in the act of corroboration. Corroboration is the act of checking the veracity of a source against other sources. Corroboration can occur across the sources in the text set or with other sources the reader may have previously encountered. Finally, historical analysis was coded as the most complex act of historical thinking. Historical analysis was defined as the act of utilizing one or more of the three historical thinking heuristics defined by Wineburg (1991) followed by an evaluative or elaborative statement. An example of historical analysis was, “Ok that brings me back to the one diagram of the
cartoon, where he has a scar on his belly and that kinda tells me like um, he did, he
doesn't know what he's doing. He did regret what happened. That's what that scar was.”
In the first sentence, the student corroborated what he was reading with a political
cartoon he had read earlier. At the end of that sentence and in the second sentence, the
student evaluated the text based on his corroboration of other texts and elaborated on his
evaluative statement.

These levels of historical thinking were coded for 1,006 events. Fifty events were
coded as value-based, 628 events were coded as sense making or mentalization, 194
events were coded as sourcing, 65 events as corroboration, 33 events as
contextualization. Finally, 36 events were coded as the most complex level of historical
thinking; historical analysis. Table 4.1 provides the number of events and percentages of
total think-aloud events across eight think-aloud protocols. It is important to note that for
sourcing, students were explicitly asked to comment on the trustworthiness and
usefulness of the source they had just read. If those prompted questions about source
usefulness and trustworthiness are removed, the number of sourcing events is 75 or 7.5%
of all think-aloud events.
<table>
<thead>
<tr>
<th>Level of Historical Thinking</th>
<th>Definition</th>
<th>Number</th>
<th>Percentage of Total Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Based</td>
<td>Making an unsubstantiated claim based on personal opinion or experience.</td>
<td>50</td>
<td>5%</td>
</tr>
<tr>
<td>Sense Making or Mentalization</td>
<td>Using more general set of reading process to make sense of the individual text.</td>
<td>627</td>
<td>62.3%</td>
</tr>
<tr>
<td>Sourcing</td>
<td>Checking the author of the document and assessing the validity and perspective of the author.</td>
<td>194</td>
<td>19.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75*</td>
<td>7.5%*</td>
</tr>
<tr>
<td>Corroboration</td>
<td>Placing events and people in time and space</td>
<td>65</td>
<td>6.5%</td>
</tr>
<tr>
<td>Contextualization</td>
<td>Checking the details of texts against other texts.</td>
<td>34</td>
<td>3.4%</td>
</tr>
<tr>
<td>Historical Analysis</td>
<td>Employing one or more of the historical thinking heuristics (sourcing, contextualization, corroboration) and making a direct follow up statement or evaluation.</td>
<td>36</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

* Represents the number and percentage of speech events that were not prompted.
Sense making or mentalization was by far the most common type of thinking exhibited by students through their think-aloud interviews; 20.9% of think-aloud events represented unsolicited historical thinking (sourcing, corroboration, contextualization, and historical analysis) exhibited by the eight students. Only 5% of think-aloud events represented the lowest level of historical thinking exhibited through value-based statements. Students did exhibit varying degrees of historical thinking but all students engaged in some form of sourcing, contextualizing, corroborating, and historical analysis. The use of these heuristics occurred less than sense making reading behavior.

The presence of historical thinking for each student in the think-aloud condition was recorded. Each student is represented in Table 4.2 and Figure 4.1 with the total number from each category. Across all 8 think-aloud students, the percentage of each level of historical thinking was consistent but some students made far more think-aloud statements like Michele and Jovany.
Table 4.2. Levels of Historical Thinking

<table>
<thead>
<tr>
<th>Student</th>
<th>Value Based</th>
<th>Sense Making</th>
<th>Sourcing</th>
<th>Corroboration</th>
<th>Contextualization</th>
<th>Historical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annika</td>
<td>10 (8.6%)</td>
<td>72 (62.1%)</td>
<td>23 (19.8%)</td>
<td>8 (6.9%)</td>
<td>0 (0%)</td>
<td>3 (2.6%)</td>
</tr>
<tr>
<td>Beatriz</td>
<td>3 (2.6%)</td>
<td>70 (60.9%)</td>
<td>24 (20.9%)</td>
<td>12 (10.4%)</td>
<td>3 (2.6%)</td>
<td>3 (2.6%)</td>
</tr>
<tr>
<td>Bianca</td>
<td>4 (3.3%)</td>
<td>81 (66.4%)</td>
<td>25 (20.5%)</td>
<td>1 (0.8%)</td>
<td>8 (6.6%)</td>
<td>3 (2.5%)</td>
</tr>
<tr>
<td>Brad</td>
<td>3 (2.6%)</td>
<td>68 (58.6%)</td>
<td>25 (21.6%)</td>
<td>9 (7.8%)</td>
<td>8 (6.9%)</td>
<td>3 (2.6%)</td>
</tr>
<tr>
<td>Jovany</td>
<td>6 (3.8%)</td>
<td>105 (65.6%)</td>
<td>19 (11.9%)</td>
<td>14 (8.8%)</td>
<td>10 (6.3%)</td>
<td>6 (3.8%)</td>
</tr>
<tr>
<td>Miguel</td>
<td>0 (0%)</td>
<td>63 (62.4%)</td>
<td>29 (28.7%)</td>
<td>5 (5.0%)</td>
<td>2 (2.0%)</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>Michele</td>
<td>15 (9%)</td>
<td>102 (61.4%)</td>
<td>28 (16.9%)</td>
<td>8 (4.8%)</td>
<td>1 (0.6%)</td>
<td>12 (7.2%)</td>
</tr>
<tr>
<td>Richard</td>
<td>9 (8.2%)</td>
<td>66 (60%)</td>
<td>21 (19.1%)</td>
<td>8 (7.3%)</td>
<td>2 (1.8%)</td>
<td>4 (3.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (5.0%)</td>
<td>627 (62.3%)</td>
<td>194 (19.2%)</td>
<td>65 (6.5%)</td>
<td>34 (3.4%)</td>
<td>36 (3.6%)</td>
</tr>
</tbody>
</table>

Figure 4.1. Historical Thinking
The reading processes embedded in each of these levels of historical thinking are discussed in the next section based on total number of occurrences as well as by each student.

**Reading Processes**

The reading processes exhibited within each level of historical thinking were nested within each level of historical thinking. These reading processes represented the second level of coding of the think-aloud data. The codes described the specific processes that students exhibited during their level of historical thinking. Each level of historical thinking had a number of reading processes nested within that larger category. For example, a value-based statement might include agreeing or disagreeing with the author, the situation, or the historical agents. Sense making or mentalization included twelve reading behaviors as described by Pressley & Afflerbach (1995). A description of each of the reading process under each level of historical thinking is described in Appendix F. Each level of historical thinking and the nested reading process codes will be discussed in turn in this section.

**Value-based statements.**

It was expected that students would make a number of value-based statements or unsubstantiated claims about the event or actors involved in the Gulf of Tonkin sources. That is, they would make an evaluation based on a feeling they had but not based on what the textual evidence provided. Students made a total of 50 value-based statements across the 8 think-aloud interviews. The most value statements made by a student were 13 and the least was 0. Value based statements contained six nested processes. Three of the
processes involved agreeing with the author, situation, or historical actor. The other three processes involved disagreeing with the author, situation, or historical actor.

**Table 4.3. Value-based Statements Frequency**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question or disagree w/author</td>
<td>Expresses a disagreement with the author or questions what the author is stating.</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Question or disagree w/actor(s)</td>
<td>Expresses a disagreement with the historical actor(s) or questions what the actor(s) is/are stating.</td>
<td>18</td>
<td>36%</td>
</tr>
<tr>
<td>Question or disagree w/event or situation</td>
<td>Expresses a disagreement with the situation that is presented.</td>
<td>22</td>
<td>44%</td>
</tr>
<tr>
<td>Agree with author</td>
<td>Expresses an explicit agreement with the author.</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>Agree with actor(s)</td>
<td>Expresses an agreement with the actor(s) involved.</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Agree with event or situation</td>
<td>Expresses an agreement with the event or situation that is presented.</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>

The most common type of value-based statement was to question or disagree with an event or situation. A vast majority of value-based statements were questioning or disagreeing with the author, actor(s), or situation. An example of a student making a
value based statement is provided below. Beatriz, a low proficiency reader as measured by her score of a 16 on the ACT, viewed the *Midnight Address* made by President Johnson on television the night after the second attack.

**Video Playing:** Finally, I have today met with the leaders of both parties in the Congress of the United States and I have informed them that I shall immediately request the Congress to pass a resolution making it clear that our Government is united in its determination to take all necessary measures in support of freedom and in defense of peace in Southeast Asia. I have been given encouraging assurance by these leaders of both parties that such a resolution will be promptly introduced, freely and expeditiously debated, and passed with overwhelming support.

**Michael:** Go ahead and pause it. What do you think about that?

**Beatriz:** Honestly, I think he's just making a big deal about it.

Beatriz made an evaluation about President Johnson’s remarks but they are unsubstantiated and are not clearly marking what aspect of the video she is referring to. This was coded as a value-based statement. The reading process code was designated as questioning or disagreeing with a historical actor. In this case, the historical actor is President Johnson. The number of value-based statements varied across students regardless of their reading proficiency. For example, Michelle, the most proficient reader in the group, made the most value-based statements. These statements did not impede the overall understanding of the event for students nor were they the basis for most of their analysis of the Gulf of Tonkin incident.
Figure 4.2. Value-Based Statements Frequency per Think-aloud Student

Sense making or mentalization.

As expected, this level of historical thinking was most prominent and contained the greatest number of nested reading processes: 628 were made by all eight students. Sense making statements made up 62.4 percent of all think-aloud events. Drawing from the research of Pressley & Afflerbach (1995), reading processes were divided into 12 categories. The 12 categories and percentages are described below in Tables 4.4 and 4.5 representing less complex reading behavior and more complex reading behavior.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Quote</td>
<td>Directly quotes from the source.</td>
<td>14</td>
<td>2.2%</td>
</tr>
<tr>
<td>Paraphrase</td>
<td>Paraphrases a statement made in the text.</td>
<td>63</td>
<td>10%</td>
</tr>
<tr>
<td>Re-Read</td>
<td>Re-reads from a previous selection of text.</td>
<td>11</td>
<td>1.8%</td>
</tr>
<tr>
<td>Evaluate own</td>
<td>Makes a comment about their personal comprehension of the source.</td>
<td>31</td>
<td>4.9%</td>
</tr>
<tr>
<td>Summarize</td>
<td>Gives an overall summarization of the source or part of the source.</td>
<td>31</td>
<td>4.9%</td>
</tr>
<tr>
<td>Clarifying</td>
<td>Asks a question to clarify an understanding.</td>
<td>50</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>A statement that indicates some type of sense making that cannot be classified.</td>
<td>17</td>
<td>2.7%</td>
</tr>
</tbody>
</table>
Table 4.5. Frequency of More Complex Reading Behaviors

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of Events</th>
<th>Percent of Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a prediction</td>
<td>Makes a predictive statement about what might be read in a given source.</td>
<td>3</td>
<td>.5%</td>
</tr>
<tr>
<td>Make an Inference</td>
<td>Makes an inference to try and make sense of something from the source.</td>
<td>18</td>
<td>2.9%</td>
</tr>
<tr>
<td>Question veracity</td>
<td>Asks a question or makes a statement that calls into question the veracity of something from the source.</td>
<td>64</td>
<td>10.2%</td>
</tr>
<tr>
<td>Make an evaluation</td>
<td>Makes an evaluative statement about the content in a source.</td>
<td>237</td>
<td>37.7%</td>
</tr>
<tr>
<td>Make an elaboration</td>
<td>Makes a follow up to an evaluative statement by using evidence or some connection.</td>
<td>89</td>
<td>14.2%</td>
</tr>
</tbody>
</table>

The twelve categories of reading processes were subdivided into two categories as shown in Table 4.4 and Table 4.5. The first 6 processes could be described as generating a less complex understanding of the overall textbase or the creation of a less complex mental representation across texts. The last 5 processes can be described as facilitating more complex mental representations across multiple texts. The last 5 codes, making a prediction, making an inference, questioning the veracity of the text, making an evaluation, and making an elaboration, can be considered to be forms of self-explanations.
made by students to aid the integration of new knowledge. Self-explanations (Chi, DeLeeuw, Chu, & LaVancher, 1994) are argued to enhance the learning of new knowledge and when used in greater frequency, the deeper the understanding of a particular concept. It is argued here that the events that could be categorized as generating self-explanations potentially lead to the generation of complex mental representations across the sources.

The division of the codes based on complexity of mental representations resulted in 31.8 percent of events not adding to a complex mental representation whereas 65.5 percent of think-aloud events were coded as contributing to a complex mental representation. Few statements could not be coded (2.7% did not fall into any category). An example of an event coded as other would be, “I don’t think anything about that.” These 8 students exhibited a higher frequency of more complex reading behaviors than less complex but the type varied for each student as shown in Figure 4.3.

**Figure 4.3. Less Complex Reading Processes Frequency per Think-aloud Student**
An evaluative set of statements demonstrated a complex mental representation. In the following example, Annika (pseudonym) made evaluative statements while listening to a phone call between Secretary of Defense Robert McNamara and President Lyndon Johnson. She was also a less proficient reader as measured by a 16 on the ACT.

Michael: What are you thinking about right now as you are hearing this conversation between the President and the Secretary of Defense?

Annika: Alot, they have alot of planes up there. For just two of them. Cause they are making it seem like it was, if they're gonna go actually go over on the war like right now. It's just two unidentified aircraft.

In this example, Annika demonstrated a critical stance by making an insightful evaluation and followed up with an elaboration of the initial evaluation. While these idea units were not coded for historical thinking like sourcing or corroboration, they do indicate higher order thinking about the topic. Her evaluation was coded as sense making as opposed to a value-based statement because her evaluation was based on the text that she had read.
Students’ demonstration of more complex reading behaviors was more consistent than their less complex reading behaviors as demonstrated in Figure 4.4. The highest frequency of more complex reading behavior was to make evaluative statements about the text. All eight students made evaluations during the think-aloud protocol. This behavior suggests that these students were able to exhibit complex reading behavior that can be used for historical reasoning.

**Sourcing.**

Many think-aloud events (194) were coded as engaging in the historical thinking heuristic as sourcing. Sourcing a document refers to considering the author, date, and/or source of the publication to make inferences about the text they are reading (Wineburg, 1991). The reading processes that were identified to constitute the act of sourcing were
divided into eight categories. Each category is described with the frequency they occurred throughout the eight think-aloud sessions are described below in Table 4.6.

**Table 4.6. Sourcing Frequency**

<table>
<thead>
<tr>
<th>Code description</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify source</td>
<td>Acknowledges the presence of the source or author explicitly.</td>
<td>18</td>
<td>9.3%</td>
</tr>
<tr>
<td>Summarize source</td>
<td>Discusses what the source is about in summative statement.</td>
<td>15</td>
<td>7.7%</td>
</tr>
<tr>
<td>Predict content</td>
<td>Predicts what the contents of the source will reveal.</td>
<td>10</td>
<td>5.2%</td>
</tr>
<tr>
<td>Expresses interest</td>
<td>Demonstrates and interest in reading the source.</td>
<td>12</td>
<td>6.2%</td>
</tr>
<tr>
<td>Make an evaluation</td>
<td>Evaluates the evidence the source provides. It is an evaluation of the source not the evidence contained.</td>
<td>18</td>
<td>9.3%</td>
</tr>
<tr>
<td>Make an elaboration</td>
<td>Makes a follow up to an evaluative statement about the source by using evidence or some connection back to the source.</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Evaluate usefulness</td>
<td>Discusses the usefulness of the source.</td>
<td>50</td>
<td>25.8%</td>
</tr>
<tr>
<td>Evaluate trustworthiness</td>
<td>Discusses the trustworthiness of the source.</td>
<td>69</td>
<td>35.6%</td>
</tr>
</tbody>
</table>
It is important to note that after reading each source, students were prompted to evaluate the source for its usefulness and trustworthiness. If those think-aloud events are removed, students made a total of 75 think-aloud events that sourced a document (8.4%). In the following example, Brad (pseudonym), a more proficient reader as measured by a 24 on the ACT, sourced the document he viewed without prompting.

Brad: Alright, so I'm still confused as how we're not sure what happened, but they made a re-enactment and this is what they're telling people about what happened and they're not even sure, so why are they telling people if they're not like a thousand percent sure on what exactly happened yet. Brad identified the source, by stating that it is a re-enactment but he is not sure why this is what is being reported if there is ambiguity in what really happened. Identifying the source or making an evaluation of a source were the most common ways that students sourced the documents they read.

All of the students varied in they ways they sourced the document. No clear patterns for sourcing emerged for individuals, as demonstrated in Figure 4.5. All of the students except for Jovany did evaluate at least one source. This data suggests that focusing on how to source a document would help these students engage in a more focused use of the sourcing heuristic.
Figure 4.5. Sourcing Frequency per Think-aloud Student

Contextualization.

Thirty-three think-aloud events were coded as the historical thinking heuristic of contextualization. Contextualization is the act of situating the historical source in time and space (Wineburg, 1991). Contextualizations were divided into 5 processes described in Table 4.7. The data provided below demonstrates that most of the contextualization that occurred was at a literal level. Only one student made an inference based on a contextualization statement. Most were either identification of the time or sequencing events (54.5%). Twelve statements were made to evaluate the event in regards to time, which suggests some demonstration of using the contextualization heuristic in a complex manner.
Table 4.7. Contextualization Frequency

<table>
<thead>
<tr>
<th>Code description</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarifying</td>
<td>Asks a question about place and/or time.</td>
<td>2</td>
<td>6.1%</td>
</tr>
<tr>
<td>Making an inference</td>
<td>Makes an inference about the place/time.</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Identifying place in time</td>
<td>Explicitly acknowledges the place/time.</td>
<td>10</td>
<td>30.3%</td>
</tr>
<tr>
<td>Sequencing events</td>
<td>Places the event in context with other events.</td>
<td>8</td>
<td>24.2%</td>
</tr>
<tr>
<td>Making an evaluation based on time</td>
<td>Makes an evaluation in regards to the time.</td>
<td>12</td>
<td>36.4%</td>
</tr>
</tbody>
</table>

Students engaged in some form of contextualization particularly with video sources. The most common type of contextualization was to make an evaluation based on the context of the source. That is, the content of the information of the source was evaluated based on the time in which it occurred. In the following example, Jovany (pseudonymn) a less-proficient reader as measured by an 18 on the ACT, made an evaluation about the sequence of the events based on his contextualization of when the reports of being fired upon came in. He used the contextualization heuristic to evaluate the how fast a counterattack could occur.
Video Playing: and supporting aircraft acted at once on the orders I gave after the initial act of aggression.

Jovany: When. Ok he he gave the orders for the, for the flight of the airplanes, the second day they were attacked, right? How fast would they be able to get in touch with him? And like for him to give the order to go bomb them right away. I mean cause it’s like ok they got attacked and right after then they got the ship uh the planes going. I mean.

His contextualization was based on his sequencing of the events of August 2nd and August 4th in the Gulf of Tonkin. Jovany asked a clarifying question about when Johnson gave the orders to bomb North Vietnam. He stated, “the second day they were attacked, right?” He used the date of the attacks to make an inference about Johnson’s justification based on the time he would need to hear a report and the time it took to issue a military order. He consciously attended to the information provided about the source and evaluated the decision based on this information. Despite this level of historical thinking, it was not widely practiced by all of the students. All 8 students made a total of 33 contextualizations.

Figure 4.6 demonstrates that Bianca, Brad, and Jovany made more contextualizations than the other think-aloud students. It is evident that while all except Annika could contextualize without being prompted, these students would benefit from instruction that focuses on how to use contextualization to produce a stronger historical analysis.
Corroboration.

Students made a total of 65 think-aloud statements that explicitly corroborated information across sources. Corroboration is defined as checking the details of one source against other sources he or she has read (Wineburg, 1991). Within this historical thinking heuristic, nine codes described the types of corroboration that could be made. These codes and their frequency are presented in Table 4.8.
Table 4.8. Corroboration Frequency

<table>
<thead>
<tr>
<th>Code description</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare sources</td>
<td>Makes and explicit comparison or contrast between two or more sources.</td>
<td>11</td>
<td>16.9%</td>
</tr>
<tr>
<td>Synthesize</td>
<td>Synthesizes two or more sources.</td>
<td>4</td>
<td>6.2%</td>
</tr>
<tr>
<td>Corroborate Image</td>
<td>Makes a reference to evidence from an image.</td>
<td>3</td>
<td>4.6%</td>
</tr>
<tr>
<td>Corroborate Audio</td>
<td>Makes a reference to evidence from an audio.</td>
<td>1</td>
<td>1.5%</td>
</tr>
<tr>
<td>Corroborate Video</td>
<td>Makes a reference to evidence from a video.</td>
<td>20</td>
<td>30.8%</td>
</tr>
<tr>
<td>Corroborate</td>
<td>Makes a reference to evidence from the introductory text.</td>
<td>6</td>
<td>9.2%</td>
</tr>
<tr>
<td>Corroborate Prior</td>
<td>Explicitly refers to a piece of evidence from prior knowledge.</td>
<td>11</td>
<td>16.9%</td>
</tr>
<tr>
<td>Corroborate the overall text set</td>
<td>Makes a reference to evidence from an idea that has been presented throughout the texts.</td>
<td>9</td>
<td>13.1%</td>
</tr>
<tr>
<td>Address ambiguity</td>
<td>Acknowledges the discordance between two or more sources.</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>
The type of text that was most salient for corroboration was video. The 8 students made a total of 65 corroborations and 20 statements corroborating with a video. An example of corroborating a video was demonstrated by Beatriz (pseudonym) who was a less proficient reader as measured by a 16 on the ACT. She corroborated the introduction video with the introduction text.

Beatriz: So the video shows that it’s different from the what the report says and way different cause it said that the report said something about that the Vietnamese, the North, the North shot the US first. And the video said that the US shot the North first. But then that it was in neutral waters and you know and claimed by neither of them. So that they shot first so would that say that they started it. The little fight first.

This example demonstrates that Beatriz attempted to contextualize the event by comparing what she read in the introduction with the video she had viewed. Later, she corroborated McNamara’s account in the Fog of War documentary with the introduction text and video when she stated her opinion about Johnson’s justification.

Beatriz: Well before I thought that we, we did have the right to go to war cause like they said that we were attacked, and now this video shows, explains that we weren't even attacked at all. So why go to war.

By the end of the task, Beatriz had made 12 total corroborations. Of those 12 corroborations, 4 were made directly with video. The rest were with prior knowledge or by comparing and contrasting with other sources she had read. For all corroborations coded, the eight students made 20 corroborations with video but only 3 with images and 1 with audio. For all students, regardless of reading ability, video was clearly the most
salient resource for engaging in the historical practice of corroborating across sources. Figure 4.7 and 4.8 show the types of sources that students corroborated and how they used the corroboration heuristic. All of the students, except Richard, made at least one corroboration with a video. Video may be a good source to use when introducing students to corroboration.

**Figure 4.7. Source of Corroboration**

Figure 4.8 demonstrates that students mainly used corroboration to compare sources. The next most common use of corroboration was to compare a source to the situation model they had begun to create across their sources they had read. Despite the ability of students to engage in sourcing, they did not use corroboration to account for ambiguity between the sources, signaling a need for instruction on resolving historical ambiguity by closely corroborating sources.
Figure 4.8. Types of Corroboration

**Historical analysis.**

Thirty-six think-aloud events were coded as historical analysis. Historical analysis was defined as a follow up speech event that was preceded by one of the three historical thinking heuristics. In this study, historical analysis is defined as the ability to evaluate the complexity of the Gulf of Tonkin Incident and use sourcing, contextualization, and/or corroboration to generate an interpretation or evaluation of the event. Historical analysis was divided into eight categories. The codes and their frequency are presented in Table 4.9. The majority of historical analysis statements (47.2%) made an explicit evaluation using evidence that had been sourced, contextualized, or corroborated.
Table 4.9. Historical Thinking Frequency

<table>
<thead>
<tr>
<th>Code description</th>
<th>Description</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss coherence</td>
<td>Makes an evaluation based on how well the texts worked together.</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Complexity</td>
<td>Makes an evaluation in regards to multiple reasons or contentions to answer the inquiry question using evidence.</td>
<td>6</td>
<td>16.7</td>
</tr>
<tr>
<td>Evidence</td>
<td>Makes an evaluative statement using explicit historical evidence that has been sourced, contextualized, and or corroborated.</td>
<td>17</td>
<td>47.2</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Makes a follow up to an evaluative statement by using additional evidence or some connection.</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Inclusivity</td>
<td>Makes an evaluation about the presence or absence of a source.</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td>Inquiry Question</td>
<td>Makes an explicit reference to their attempt to answer the overall inquiry question.</td>
<td>6</td>
<td>16.7</td>
</tr>
<tr>
<td>Historical Subjectivity</td>
<td>Places themselves as historian</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Theme</td>
<td>Explicitly acknowledges themes that occur across texts.</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
The following is an exemplary case of historical analysis. Miguel (psuedonymn) is a highly proficient reader who scored a 27 on the ACT. He just finished listening to the phone call with McGeorge Bundy. He corroborated this phone call with the overall textbase that Johnson was calling for war through the Tonkin Gulf Resolution.

Miguel: Wait so he's, so right now he's saying he's not so confident about the war, but later he calls for war anyway.

A few lines later, Miguel elaborated on his historical evaluation.

Miguel: I think that maybe something else might have been influencing him to join the war, or get into war, because right now he's really doubtful about the war.

Michael: What do you think is influencing him?

Miguel: Maybe, like maybe his advisors or something.

Miguel made sophisticated analysis to question Johnson’s justification. He referred back implicitly to the *Midnight Address* and then acknowledged the complexity of the event by acknowledging the role of multiple historical agents in the decision to go to war. A minimal number of historical analysis statements were made but the all students made at least 2 historical analysis comments. Figure 4.9 demonstrates the types of frequency of historical analysis statements. Every student except Miguel made an evaluative statement that was coded as historical analysis.
Despite the excellent analysis proffered by Miguel, it was the only source that he used to make a historical analysis comment. Richard (pseudonym) and Michele (pseudonym), the most proficient readers in the study with a 29 and 31 respectively on the ACT, made multiple historical analysis statements. Jovany (pseudonym), a less proficient reader, made the second highest number of historical analysis comments with six.

**Location**

The location of each event was coded at the local, intratextual, intertextual, and global levels. The local level was defined as an event that addressed a piece of text that was read immediately prior to the comment. The intratextual level was defined as an event that referred to text that preceded the previous comment within the same text. The intertextual level was defined as an event that referred to a previous text that was read during the think-aloud interview. The global level was defined as an event that referred to
the entire text set or inquiry task. Of the 1,006 think-aloud events, 669 were coded at the local level, 248 were coded at the intratextual level, 67 were coded at the intertextual level, and 22 were coded at the global level as demonstrated in Table 4.10.

Table 4.10. Location of think-aloud events

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>669</td>
<td>66.5%</td>
</tr>
<tr>
<td>Intratexual</td>
<td>248</td>
<td>24.6%</td>
</tr>
<tr>
<td>Intertextual</td>
<td>67</td>
<td>6.7%</td>
</tr>
<tr>
<td>Global</td>
<td>22</td>
<td>2.2%</td>
</tr>
<tr>
<td>Total</td>
<td>1,006</td>
<td>100%</td>
</tr>
</tbody>
</table>

By far most speech events were made at the local level right after reading and some were made within the text they were reading. The intertextual references made by students were overwhelmingly made when corroborating across sources. Sixty-five corroboration statements were made out of 67 intertextual references. Very few students made global statements and most of the global statements occurred towards the end of the task.

Student Use of Multimodal Sources

Students engaged in fairly complex reading behaviors but did not regularly use specific historical thinking processes. Despite the relative lack of historical thinking heuristic usage, students were critical and evaluative in their reading. They did demonstrate the ability to utilize all of the historical thinking categories and create complex mental representations of the Gulf of Tonkin incident while possessing very little background knowledge on the subject. Additionally, the historical thinking
heuristics were not explicitly taught to any of the students that participated in the study nor were they an explicit part of the curriculum. The data analysis in this section demonstrates that students can read complex historical sources and use historical thinking heuristics to facilitate the comprehension of those sources. It is also evident, however, that in order to engage in disciplinary thinking, disciplinary literacy strategies are necessary, especially for the use of the sourcing, contextualization, and corroboration. The next level of data analysis was to investigate how student understandings were influenced by reading multimodal sources.

**Research Question 2**

In this study, the historical sources used by the students were the sources that were provided and embedded in the task. The use of these sources as described in student talk about the role of the source is the main unit of analysis. Student usefulness and trustworthiness ratings of the six main sources, semi-structured interviews with the think-aloud participants following the task, and the transcripts from the think-aloud protocols all provided insights into how students’ understandings of the Gulf of Tonkin Incident were influenced by text type (audio, image, video) and historical source (primary source, secondary source). Usefulness and trustworthiness ratings based on a 1-to-5 Likert-scale were tabulated and averaged. Student responses that indicated why a particular rating was ascribed for usefulness or trustworthiness were analyzed using constant comparative analysis (Glaser & Strauss, 1967). That is, all comments recorded by students in the whole class task that explained their usefulness and trustworthiness ratings were read multiple times and coded as patterns emerged. The four codes
that emerged were rating a source for usefulness or trustworthiness based on 
content, the source attributes, the modality, or a lack of comprehension. In the 
same manner, think-aloud comments and events within comments as well as the 
follow-up semi-structured interview questions from the eight students in the 
think-aloud task were analyzed to demonstrate students’ interactions with the 
three different types of texts.

As mentioned in Chapter 3, when students finished reading each source (except 
for the introduction text and video), they rated them on a 1-to-5 Likert scale for their 
usefulness and again on a 1-5 Likert scale for trustworthiness. Following each rating, 
students wrote an explanation for their ratings. When they finished reading all of the 
sources, students ranked the texts for their relative usefulness and trustworthiness scale. 
Figure 4.11 and 4.12 show the mean usefulness and trustworthiness ratings for each 
source. Only the political cartoon, Vietscar garnered below average usefulness and 
trustworthiness ratings.

Table 4.11. Whole Class Condition Usefulness Mean Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fog of War video</td>
<td>3.76</td>
<td>.899</td>
</tr>
<tr>
<td>Midnight Address video</td>
<td>3.67</td>
<td>.920</td>
</tr>
<tr>
<td>Bundy Phone Call</td>
<td>4.0</td>
<td>1.05</td>
</tr>
<tr>
<td>McNamara Phone Call</td>
<td>3.52</td>
<td>.89</td>
</tr>
<tr>
<td>Senate Voting Record</td>
<td>3.75</td>
<td>1.30</td>
</tr>
<tr>
<td>Vietscar Political Cartoon</td>
<td>2.53</td>
<td>1.35</td>
</tr>
</tbody>
</table>
Table 4.12. Whole Class Condition Mean Trustworthiness Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Fog of War</em> video</td>
<td>3.70</td>
<td>1.03</td>
</tr>
<tr>
<td><em>Midnight Address</em> video</td>
<td>4.04</td>
<td>.941</td>
</tr>
<tr>
<td>Bundy Phone Call</td>
<td>4.44</td>
<td>.70</td>
</tr>
<tr>
<td>McNamara Phone Call</td>
<td>3.98</td>
<td>.923</td>
</tr>
<tr>
<td><em>Senate Voting Record</em></td>
<td>4.18</td>
<td>1.01</td>
</tr>
<tr>
<td><em>Vietscar</em> Political Cartoon</td>
<td>2.09</td>
<td>1.13</td>
</tr>
</tbody>
</table>

Short embedded videos, images, and audio recordings were the three main types of texts that were utilized by students to address the inquiry question. These multimodal sources contained multiple semiotic signs in different combinations that were used to convey the content of the source. For example, the videos made use of moving and still images, audio, and text. The images made use of hand drawings, organized tables, and text. One of the audio sources only contained sound and the other contained sound and a visual transcription of the sound file that was a recorded telephone conversation. These six multimodal sources also represented different types of historical sources that served to influence historical thinking. That is, the fact that a source was primary or secondary served to influence student understanding as well as the modality of source. As a result of the unique sign systems that each text type employed, each text type will be discussed separately and then analyzed based on the salient features of the modality and the type of historical source it represented followed by an overall discussion of the interaction of all three types of text and types of historical sources.
The first element that appeared to impact student understandings of the eight sources was the perceived usefulness and/or trustworthiness of the source. The second element that seemed to impact student understandings was the modality of the source—for example, whether or not a source was a primary document. Finally, the relationship of the source to other documents (e.g. contested) was an impacting element.

**Figure 4.10. Taxonomy of Sources**

Each source was analyzed first based on usefulness ratings then based on trustworthiness ratings. Student ratings about usefulness and trustworthiness were coded based on their stated reasons for choosing a particular rating. The four codes that emerged were based on a) the content provided in the source, b) the source attributes of the text, c) reported problems with comprehension, and d) the salient features of the modality. Content-based ratings included statements like, “The President gave reasons for why he asked for the resolution.” Source attribute based ratings included statements like, “because it was an interview with
the Secretary of Defense.” Reported comprehension problems included statements like, “the cartoon is not useful because I do not understand it.” Finally, modality based ratings included statements like, “it was useful because it allowed you to hear the conversation between Johnson and Bundy.” Responses were tabulated and are reported as a percentage of the total responses in tables 4.13 and 4.14.

Table 4.13. Usefulness Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Content</th>
<th>Source</th>
<th>Comprehension</th>
<th>Modality</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Fog of War</em></td>
<td>37(80.4)</td>
<td>2(4.3)</td>
<td>1(2.2)</td>
<td>6(13.0)</td>
</tr>
<tr>
<td><em>Midnight Address</em></td>
<td>32(80.0)</td>
<td>2(5.0)</td>
<td>0(0.0)</td>
<td>6(15.0)</td>
</tr>
<tr>
<td>Phone call w/McNamara</td>
<td>36(87.8)</td>
<td>1(2.4)</td>
<td>0(0.0)</td>
<td>4(9.8)</td>
</tr>
<tr>
<td>Phone call w/Bundy</td>
<td>40(93.0)</td>
<td>1(23.3)</td>
<td>0(0.0)</td>
<td>2(4.7)</td>
</tr>
<tr>
<td><em>Senate Voting Record</em></td>
<td>36(85.7)</td>
<td>1(2.4)</td>
<td>2(4.8)</td>
<td>3(7.1)</td>
</tr>
<tr>
<td><em>Vietscar</em></td>
<td>23(48.9)</td>
<td>6(12.8)</td>
<td>14(29.8)</td>
<td>4(8.5)</td>
</tr>
<tr>
<td>Total</td>
<td>204(78.8)</td>
<td>13(5.0)</td>
<td>17(6.6)</td>
<td>25(9.7)</td>
</tr>
</tbody>
</table>
Table 4.14. Trustworthiness Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Content</th>
<th>Source</th>
<th>Comprehension</th>
<th>Modality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fog of War</td>
<td>25(55.5)</td>
<td>10 (22.2)</td>
<td>0(0.0)</td>
<td>10 (22.2)</td>
</tr>
<tr>
<td>Midnight Address</td>
<td>17 (39.5)</td>
<td>14(32.5)</td>
<td>2(4.7)</td>
<td>10(16.5)</td>
</tr>
<tr>
<td>Phone call w/McNamara</td>
<td>15(35.7)</td>
<td>16(38.1)</td>
<td>0(0.0)</td>
<td>11(26.2)</td>
</tr>
<tr>
<td>Phone call w/Bundy</td>
<td>13(28.9)</td>
<td>13(28.9)</td>
<td>0(0.0)</td>
<td>19(42.2)</td>
</tr>
<tr>
<td>Senate Voting Record</td>
<td>11(26.2)</td>
<td>27 (64.3)</td>
<td>1(2.4)</td>
<td>3(7.1)</td>
</tr>
<tr>
<td>Vietscar</td>
<td>8(18.6)</td>
<td>27(64.3)</td>
<td>2(4.8)</td>
<td>5(11.9)</td>
</tr>
<tr>
<td>Total</td>
<td>89(34.4)</td>
<td>107(41.3)</td>
<td>5(1.9)</td>
<td>58(17.2)</td>
</tr>
</tbody>
</table>

The majority of student usefulness ratings were based on the content of the source whereas trustworthiness ratings were divided between content and source attributes. When students did base a rating on modality it appeared that modality mattered more for a trustworthiness rating than for a usefulness rating. A deeper analysis revealed that the majority of comments made about modality came from less proficient readers. Each source will be discussed for both the salient features associated with modality and the salient features associated with the text as a historical source.

**Video**

Videos represent a broad medium of text. Video can include raw recorded footage of an event or can represent an interpretation of an event based on editing and other textual features that are added to the video such as sound editing or the addition of text. The inquiry task for this study included three video sources. The introduction video was a clip from a 1971 CBS *Sixty Minutes* episode. The *Fog of War* was a clip from the
2003 Academy Award-winning documentary, and the *Midnight Address* video was the actual television recording of President Johnson’s address to the nation following the reported Gulf of Tonkin Incident. The *Sixty Minutes* clip and the *Fog of War* clip represented interpreted videos based on their production as a television program and documentary respectively. The *Midnight Address* represented the raw footage of Johnson’s televised address to the nation. Even so, it was still a rehearsed event for television and not raw footage of the incident itself.

**CBS Sixty Minutes.**

The introduction video was the second source viewed by all students following the introduction text. The CBS *Sixty Minutes* source was used as part of an anchor text to provide background knowledge about the Gulf of Tonkin Incident. The majority of think-aloud comments about the introduction video were made at the sense making level and consisted of clarification questions and summarization statements. The statement made by Brad (pseudonym) is representative of the types of statements made while watching the video.

Brad: All right, so I'm still confused as how we're not sure what happened, but they made a re-enactment and this is what they're telling people about what happened and they're not even sure, so why are they telling people if they're not like a thousand percent sure on what exactly happened yet.

Brad was trying to make sense of the incident after reading the introduction text and then watching the video. After students watched the video they recorded their initial opinion to the inquiry question about Johnson’s justification. Here is an example of the reasoning
given by a student from the whole class task explaining that her initial opinion was that Johnson was not justified.

Student:  I look forward to understand who and what happened during the time that attack 34a was launched. The video says that the Maddox had caught unidentified boats that had attacked the Maddox. The North Vietnamese were to blame, supposedly it was them. But I highly doubt it. The U.S. were in N.V. waters. I think this video was really helpful, because it sums up the whole "written" intro. The visual and auditory thing helped.

This student specifically addressed the modality of the two introduction sources. She stated that the video was helpful because of the auditory and visual components and that it summarized the introduction text. No students addressed the fact the video was from CBS news or that it was aired six years after the Gulf of Tonkin Incident. Since this was the first source they encountered they may have been less critical of the source. Students were not directly asked about the usefulness or trustworthiness of either the introduction text or video because they were considered to be a part of the introduction to the topic and were read by all students first as the anchor text.

**Fog of War.**

The *Fog of War* was a YouTube video clip from the 2003 Academy Award winning documentary. It was a secondary source that was a retrospective from former Secretary of Defense Robert McNamara that also contained primary source footage from the decks of the *USS Maddox.*
The responses of students from the whole class task revealed ways in which the *Fog of War* influenced their understandings based on the merits of the video as a historical source. The average score for the usefulness ratings following the reading of the *Fog of War* was a 3.8/5.0, and its average trustworthiness rating was 3.7/5.0. When students were asked rate the most useful source at the end of the task, the *Fog of War* video was most cited. Fourteen students (27.5%) rated the source as most useful. Seven students (16.3%) rated the *Fog of War* as most trustworthy of all of the sources.

The amount and quality of information provided in the *Fog of War* was the most cited reason given by students for its high usefulness rating. One student who rated the *Fog of War* a 4 for usefulness commented, “the video shows insight on how the torpedoes didn’t really happen and it’s better than reading about what happened.” Another student who rated the *Fog of War* a 4 for usefulness reported, “I think that now I know that there wasn’t any attacks and that shifts me to saying that President Johnson was completely unjustified because he wasn’t certain that there was even an attack. It was also helpful to see re-enactments and hear from someone who was actually there.”

Students in the think-aloud condition often questioned the veracity of the claims of attack by the North Vietnamese when they viewed the *Fog of War*. The following statement made by Beatriz, a less proficient reader about the usefulness of the video highlights why the source helped her to make a decision.

Beatriz: Cause it showed like, it showed like tapes of how they weren't sure of anything. And he said like yeah it was ten hours later they confirmed it that it wasn't a real attack.
Beatriz’s understanding was influenced by information contained in the source. In this example, the video utilized recorded calls from the deck of the Maddox and Secretary of Defense McNamara.

**Midnight Address.**

The Midnight Address was a recording of the five-minute speech President Johnson delivered to the nation at 11:33 pm Eastern Standard Time on the night of August 4th. The footage was presented in the form of a YouTube video and was posted by the Miller Center of Public Affairs from the University of Virginia.

The average usefulness and trustworthiness ratings for the Midnight Address were 3.7/5.0 and 4.0/5.0, respectively. At the end of the task, however, only two students (4.7%) rated the Midnight Address as most useful.

The Midnight Address scored high ratings directly after reading but was not cited as being one of the most useful sources at the end of the task. The credibility of a primary source was most often cited reason for the video’s usefulness and trustworthiness ratings. Four students (9.3%) questioned the video based on their corroboration of the Midnight Address with the Fog of War video. One student stated, “the last video I watched stated that the second attack never happened and in this video because of that second attack the United States decided to attack northern Vietnam.” These four students gave the Midnight Address a higher ranking for usefulness because it helped them decide that Johnson was not justified. One student rated the Midnight Address as a 4 for usefulness and stated, “The other video [Fog of War], I watched, I couldn’t really get what he was trying to say because it didn’t really show me his [Johnson] opinion but this video [Midnight Address] was more clear on what he was trying to do.”
Address in this example served to clarify President Johnson’s opinion on the source of the attack.

Students in the think-aloud condition most often pointed to the source of the information as influencing their understandings of the Gulf of Tonkin incident.

Michele: Ok so this is what the President is saying so it’s what he heard from like the other, like the guys who were actually there.

Jovany: Yeah, um it is the man himself but he didn't really shed too much light about the incident. He just says we got attacked, we need to retaliate. He keeps going on about how, how he's just gonna bomb North Vietnam. He's just goes on saying, we got attacked and that's the end of the story. This is what we're gonna do. This, this, this, this, and this. He doesn't really talk too much about it.

**Video as historical source.**

Think-aloud data revealed more insights about the role video, in this case the *Fog of War*, played in influencing students’ understandings during the online inquiry task.

Michele, who is a highly proficient reader, made the following comments about usefulness and trustworthiness.

Michele: So like I feel like the documentary actually had real information or real tapes of what had happened and like the interviews with the like the one guy that was talking he was there so he like really knew what he was talking about. And it also kind of it didn't really like just give you like a plain answer. It kinda like went into depth like or maybe there is something that could have happened, it didn't try to lie to you but it told
you the truth that we found some shells but there was really positive evidence like from the sonar that could really have shown an attack.

Michael: OK. Just scroll down a bit. You've sort of hit this. How trustworthy, so where would you rank it on trustworthiness?

Michele: Probably like a four. Because I really think that it’s pretty trustworthy because like, it even won like an Academy Award and I mean like its documentary and it had real people from, who were there like witnesses, and it also had like the video reel that was in the what do you call it, where they were talking, like the radio or whatever.

Michael: Oh, the audio transcripts

Michele: Yeah the audio transcripts were like tells you like what they were saying and what was actually said. And I think it’s pretty trustworthy.

Michele based her usefulness and trustworthiness ratings on the elements contained in the video itself. She cited the use of footage from the Ticonderoga destroyer and the sonar men. Additionally, she cited the actual audio recordings with the transcripts running on the screen of the admiral reporting to McNamara what his men had heard. Those features were all primary source footage from the documentary. The video afforded more details about the incident and helped Michele to contextualize the primary source footage. Video clips of primary sources may benefit readers by giving rich context for the content of the source.
**Affordances of the modalities included in video.**

Students also pointed to the modality itself as an important factor in their historical analysis. Bianca, an average reader as measured by the ACT, commented in the role of the video in her scoring the *Fog of War* a 5 for its trustworthiness.

Michael: Ok, how trustworthy was that video?

Bianca: I think it seems pretty trustworthy, because of like all the stuff you can see, the visualization of it, and how they can back up their information.

Later, Bianca viewed the *Midnight Address* and again addressed trustworthiness in relation to the affordances of the video.

Michael: How about trustworthiness? How much do you trust this video?

Bianca: Well since he's the president and it was a speech that he was making it, I guess, well I guess I'd put it at 4 because from how you see his facial expressions, it was sort of monotone and he didn’t have like feeling behind any of it.

In both cases, Bianca discussed the ability to see what is being talked about as a basis for her trust in the source. In the case of the *Midnight Address*, Bianca acknowledged that the video and audio contributed to her reading of the source. The video may be allowing her to “see it” in a different way than a visual. The video augmented Johnson’s words by showing his changing expressions as he delivered his speech.

Think-aloud data also demonstrated that videos were the most salient multimodal texts for the students in this part of the study. The *Fog of War* video received the highest usefulness ratings with an average of 4.65/5.0 for the eight think-aloud students. The students ranked video as preferred sources to use to answer the inquiry question and
when asked in follow-up interview questions, demonstrated their preference for short, embedded videos. Below is an excerpt from the follow-up interview with Bianca in which she indicated her preference for videos.

Michael: Ok, how, what was your interest level for this type of task?
Bianca: I think if it’s like that, then it would be more interesting than reading from like a book and stuff, I think just the type that has it has videos and aside from only text, it gets you like a visual picture of how things could be, so it makes you more interested because you want to know oh my god, you know that’s how it happened, oh, well why did it happen like that? It makes it easier I guess to comprehend.

Bianca explicitly mentioned video as her preferred source type in which to interact. The videos also garnered her highest usefulness and trustworthiness ratings within the task and after the task in her final ratings. A second student, Beatriz (pseudonymn), who was a less proficient reader, made similar comments in her follow up interview. Beatriz scored an 18 on her ACT reading test.

Michael: What resources did you like the best? I mean what aspects of it do you like the best?
Beatriz: The videos.

Michael: You like the videos best. What about anything else?
Beatriz: Hmm, nah just the videos.

Students across both whole class and think-aloud conditions cited their interest in reading embedded videos to learn about the Gulf of Tonkin Incident. Specifically students mentioned the ability to control the embedded video as a desirable feature of the task.
Annika: For me, I would rather um, watch the video cause it’s like…cause there would be some parts that cause you know how some people put it wordy, like too many words and it’s just like ok its confusing but when you use the video you see it a couple of times. You just like, hold on, hold on this happens and then you start getting up your own opinion about what really happened.

The students in this task consistently discussed the value of video. Whether it was the ability to contextualize an event, analyze subtle expressions, or help make greater sense of the content, students rated the videos as the most useful and most preferred sources.

Images

Images, like videos, represent a diverse visual medium. Images can be snapshots of an event or an artist rendering of a person, place, or object. The image may be staged or unfiltered. For this task, an image of the Senate Voting Record that was a chart of the vote tallies for each Senator for the Tonkin Gulf Resolution and a political cartoon, Vietscar, comprised the two images used in the text set. The Senate Voting Record, was a photograph of the tabulated votes of the 90 senators who voted on the Tonkin Gulf Resolution in August of 1964. The dissenting opinions of the two senators who voted against the resolution were provided below the image. The political cartoon, published in 1966, was a caricature of President Johnson holding up his shirt revealing a scar on his stomach in the shape of Vietnam. He is also depicted with an elongated nose like Pinocchio. There is no text that accompanies the cartoon except the title.
The average student score for the usefulness of the *Senate Voting Record* was 3.8/5.0 and 4.2/5.0 for trustworthiness. At the end of the task four students (9.5%) rated it as the single most useful source and ten students rated it as the single most trustworthy source (23.8%). The *Senate Voting Record* was often cited for its usefulness and trustworthiness because of the content that it showed and that it was an actual artifact. Several students used the phrase that it “shows” the opinions of the Senate. One student commented, “I believe it was extremely useful because it is an artifact. The photo is the exact voting record, so I know the information is not cherry picked.”

The think-aloud protocols revealed similar patterns. The *Senate Voting Record* had an average usefulness rating of 4.0 and an average trustworthiness rating of 4.0 among the eight think-aloud participants. The voting image was cited as being more useful by student ratings but the image was only used once to corroborate other sources during the think-aloud protocols. In the final ratings four of the eight students rated the image as useful. In the final rankings of usefulness, the voting image usually was rated 4th or 5th in terms of usefulness.

Miguel summed up his rating of the voting record as a 4 because, “it showed exactly how many people were for or against the war.” The image of the voting chart presented Miguel with a clear picture of who supported and did not support the war. He followed up his rating by stating his shift in opinion after viewing this source.

Miguel: I mean I still don’t think he was fully justified, but maybe there's a little more to it that people don't know about.
Miguel’s ability to see how many people supported the resolution made him evaluate that Johnson might not have been completely culpable.

**Vietscar.**

The differences in the features of these two images may account for the differences in the reported trustworthiness and usefulness ratings for each image. *Vietscar,* contained no text other than the title and the source information. In the whole class task, *Vietscar* had an average usefulness rating of 2.4/5.0 and an average trustworthiness rating of 2.1/5.0. No students rated *Vietscar* as most useful or most trustworthy.

The most cited reasons for a lack of usefulness was the lack of credibility of the artist and the students’ inability to interpret the cartoon represented. One student simply stated, “the political cartoon is not useful because I don’t get it.” Several students repeated that same sentiment. Fourteen students specifically stated that they had a lack of comprehension of the cartoon. The credibility of the cartoon was often called into question as well. One student replied, “I’m not going to trust something coming from the opinion of a cartoonist. It doesn’t really help me answer the main question. If I needed something to prove a point or answer a question, I’d be better off listening to telephone conversations and videos of documentaries, old clips, and interviews from eyewitness accounts.” This student may be tacitly sourcing the document based on other sources she found to be more credible or useful. Because of the interpretive nature of political cartoons, *Vietscar* did not seem to help improve students’ understanding of the Gulf of Tonkin Incident.

Think-aloud data revealed similar patterns. Students’ average rating for usefulness of the cartoon was a 3.0 and the average rating for trustworthiness was a 2.0. Six of the 8
students rated the political cartoon as least useful and least trustworthy in their final
document ratings. The students in the think-aloud condition also struggled in their
comprehension of the cartoon as well.

Brad: This is a political cartoon that was published on May 12, 1966. I don’t
really get this cartoon to much at all, I'm not gonna lie, I am very
confused by it. I get that it’s a caricature of him and I think like that's
supposed to be Vietnam, right?

Brad who is a proficient reader acknowledged his struggle with understanding the
cartoon. Despite his lack of comprehension, Brad is able to judge the reliability of the
source as compared with other modes.

Brad: Again, probably like a 3 cause its only a cartoon, it’s not like a picture
like that was actually taken like the tally vote thing or like the phone
conversation, it’s just a cartoon, like some guys opinion on what
happened.

Brad’s inability to comprehend the cartoon did not allow him to use the cartoon to
corroborate or contextualize events. His knowledge that political cartoons are someone’s
opinion caused him to dismiss the source. He was unable to judge the cartoon as a
reflection of some people’s perception of Johnson and corroborate that representation of
public opinion in 1966 with the other sources from the days that surrounded the event.

**Images as historical source.**

Unlike the high degree of perceived usefulness of video, students in the think-aloud
condition thought that the images presented challenges. The political cartoon posed
problems for all but one of the students. The political cartoon was generally unused in
their analyses and not integrated with other sources. The following excerpt from Missy illuminated her struggle with some images.

Michael: OK, um, what about the images? Were they like, do you like using political cartoons say in class. Like I know you use alot of those.

Michele: Yeah we do. Um, political cartoons like I like them but then again like I, the only reason I don't like them as much is because they kind of like I don't know, the message seems like usually it’s like not hidden but it’s not always completely obvious to you. So you kinda like second guess, or well I kinda second guess myself, and like is that really what he's trying to tell me. So that's kinda like they only reason I don't like them very much.

Michael: What about the other image then? Cause you still had to try and figure out what was going on in some ways. Is that different than though for you?

Michele: Um, I think that the, I think the images were easier to understand because it’s kinda its still kinda seems like it’s right there and it’s like this is what happened. This is who voted, this is who didn't or like against it or to it and this is like the path that the bullet made but like the political cartoon you still have to like kinda interpret it your own way as to figuring out what the like cartoonist really wanted to say.

Michele who is a highly proficient reader demonstrates that her historical thinking is limited by her inability to analyze political cartoons as historical sources. Even if students can interpret the message of the cartoon, they need to be able to use the source to
judge the veracity of other sources. It is evident that the eight students in the think-aloud condition did not demonstrate the ability to use the source for historical analysis but were able to use the image of the Senate Voting Record.

**Affordances of the modalities included in images.**

Even the strongest readers struggled with the political cartoon that required more interpretation. Consternation over the interpretation of the political cartoon occurred consistently throughout the task, yet videos and audio never explicitly drew self-comprehension doubts or avoidance.

Bianca: Ok, oh the cartoons, I don’t like these. Nope, no I don’t like these

Michael: How come?

Bianca: Cause it’s like, you can never figure any of these out, and they have like so many multiple meanings, it’s like, uh!

Neither the students in the think-aloud condition nor the students in whole-class task condition, mentioned much about the affordance of the images except to express how it confounded their understanding because of their interpretive nature. The *Senate Voting Record* was viewed far more in terms of content than any salient multimodal feature.

Bianca: The images, as long as it’s not a cartoon, like for the JFK one how it showed like the bullet, okay that one actually showed you how it could happen, so in that case they could be helpful, but if it’s like a cartoon that I don’t get you know it’s kind of different.

Bianca referred back to another task to express that photos and images are useful for her inquiry, but political cartoons are difficult to comprehend. Student struggles with the cartoon illuminate the interpretive nature of the image as compared with the Senate
Voting Record that provided explicit information. Since images vary in their presentation, an awareness of the level of context needed for interpretation is essential to being able to use the image as a historical source.

**Audio**

Two recorded phone calls recorded in the White House comprised the audio files for the inquiry task. The first phone call took place on the morning of the second reported attack on August 4\textsuperscript{th}. The recording was of a phone call between Secretary of Defense Robert McNamara and President Johnson. The second audio was a recorded phone call between National Security Advisor McGeorge Bundy and President Johnson in May of 1964, three months prior to the Gulf of Tonkin Incident. The audio recording with Robert McNamara was solely a sound file. The audio recording with McGeorge Bundy provided a visual transcript of the conversation between the two men.

**McNamara phone call.**

In the whole class task, students on average rated the phone call with Secretary of Defense McNamara as a 3.5/5.0 for usefulness and a 4.0 for trustworthiness. At the completion of the task, 12 students (27.9\%) rated the phone call with McNamara as the most useful source to answer the inquiry question. This was the second highest source rated for usefulness behind the *Fog of War*. Students reported the quality of the information in the audio recording as well as the authenticity of the recordings as justifications for high usefulness and trustworthiness ratings. One student commented, “the audio recording allows the listener to hear what the President and Secretary were planning. It gives what they were actually saying.” Several students reported that, “it gave a lot of information.” In terms of trustworthiness, the phrase, “because it was an
actual conversation”, was consistently stated for the justification for a trustworthiness rating.

Think-aloud students rated the McNamara phone call in a similar manner. The average usefulness rating made by students in the think-aloud condition was 3.9/5.0 and the average trustworthiness rating was 4.0/5.0. Brad scored the McNamara phone call a 5 because of the source attribute that the call was an exact exchange of ideas between two individuals.

Brad: Probably a 5 because it’s another phone conversation between like the President and that guy, so it’s exactly like what happened, it’s not altered or anything, it’s not a summary, its exactly what was said.

Like the students in the whole class, Brad expressed his trust in the source based on the authenticity of the source.

**Bundy phone call.**

In the whole class task, students on average rated the phone call with National Security Advisor Bundy as a 4.0/5.0 for usefulness and a 4.4/5.0 for trustworthiness. Nine students (20.9%) rated the phone call with McGeorge Bundy as most useful. The most students, 12 (27.9%), rated the phone call with McGeorge Bundy as most trustworthy. Students judged the usefulness of the phone call with Bundy overwhelmingly for its content. 93% of the comments made in the whole class task about the usefulness of the Bundy phone call were about the content of the source. Students’ trustworthiness ratings were more mixed. 28.9% of comments were directed at the content of the audio while the same percentage of comments was made about the source of the file. Nearly half (42%) of students commented about the modality as a reason for
their trustworthiness rating. One student expressed both the source and the modality as a reason for trust by commenting, “I trust the information because of the television station it was broadcasted from (PBS) and the way the information was presented.” Most students commented that the fact that it was an actual recording made it very trustworthy. Another student remarked, “It’s an actual recording of President Johnson. To me recordings are more trustworthy than readings.”

**Audio as Historical Source.**

The think-aloud protocols revealed similar usefulness and trustworthiness ratings for each of the phone calls. The audio sources were valued as historical sources for their authenticity. The phone call between McGeorge Bundy and President Johnson garnered high usefulness scores because the phone call occurred months before the Gulf of Tonkin Incident. Miguel, who scored a 27 on the ACT reading test, used the phone call as a source to create a nuanced viewed of the culpability of Johnson for the Gulf of Tonkin resolution.

Michael: So how useful was that phone call?

Miguel: I give that a 5.

Michael: How come?

Miguel: Cause it showed like, you could really hear the doubt in his voice, he wasn't too confident about the war or why they were over there.

Michael: So it’s helping you to prove your point? Is that what you're saying, because you can hear the doubt, or why does that

Miguel: Not really proving my point, but like, it kind of shows that he wasn't, maybe he wasn't the one that sided for the war.
Miguel pointed to the fact that he could hear doubt in Johnson’s voice when discussing the possibility of escalating American troops in Vietnam. He used his inference of the phone call to ascertain that Johnson was not always in favor of escalating the war. Later in the task, after reading the McNamara phone call, he made the claim that Johnson was being influenced by others to go to war.

Michael: So again how useful was the content to help you answer the question, was he justified in asking Congress for a Resolution for War?

Miguel: Um, I think this one was probably a 4. I think because like it really kind of showed that maybe Johnson wasn't like acting on his own ideas because it kinda gave me the impression that the Secretary of Defense was kinda pushing him or kinda not really telling him the big picture but really kinda telling him a little bit of amount of information and kinda like trying to persuade Johnson to like start going to war.

Michael: How about trustworthiness?

Miguel: Um, trustworthiness? I probably give it a 5. It was, it’s like a phone call that actually like happened and it’s not like he held anything back. He didn't like, it was like a private phone conversation so it wasn't as if Johnson was trying to like um, put on a screen or a front to say that, like try and convince everybody else of his ideas. He just kinda like listening to what was going on. So I think it was pretty trustworthy of what they were both saying.

Miguel used both audio recordings to develop a sophisticated interpretation of the role President Johnson had in the Gulf of Tonkin Resolution. Like the whole class
participants, Miguel believed the audio files were trustworthy because they were private conversations that were unfiltered. Students demonstrated awareness for the origin of the source for audio files and yet rarely questioned the origin of the video sources.

**Affordances of the modalities included in audio.**

The vast majority of the student evaluations about the audio sources addressed the content contained in the source or the authenticity of the source. The students valued audio because, “it was an actual conversation.” When asked about preference for audio Bianca responded about the modality.

Bianca: I think it does, it comes like 2, but it kinda like loses you, like if it’s really monotone or if it’s scratchy, it’s like okay I really didn't hear what they were saying and sometimes like you can’t understand them, sometimes.

Bianca responded that she preferred audio over images but that some features of an audio file may impede comprehension. One of the students in the whole class task stated that, “it (Bundy phone call) was useful because it allowed you to hear the conversation between Johnson and Bundy.” For Richard, a highly proficient reader, the availability modalities and the content provided influenced his preference for a type of source.

Richard: For this task I would have to say the audios because it helped prove my case more solidly.

Michael: OK.

Richard: But it depends on the subject and what you have for the other things. Richard, like most students in the think-aloud condition, did not cite the modality itself as particularly helping them make sense of the event but the content as being most useful.
Jovany made a comment about the usefulness of the Bundy phone call based on the merits of the source information.

Jovany: I thought it was really good. I thought it was very useful. 5. Um, I would give it a 5 just cause its, its hardcore information. And I mean, the actual, one of the people are actually saying this is me and the President at this time and this what we said this is what we thought. And ok.

Jovany followed up with his evaluation of trustworthiness and does cite the presence of audio and the fact that it was an “actual phone call”.

Jovany: I thought, I thought it was very trustworthy. As informational I thought it was trustworthy cause once again its hardcore information. It’s the actual, it’s one of the actual people saying coming out saying that yes this is our conversation nobody knows about it. Here's a video about it and some audio.

Audio as compared to video and images did not elicit much discussion about the features of an audio recording other than they represented “actual conversations.” The audio files also drew the most justification for a usefulness rating based on the content in the source. Audio sources appeared to be the most unchallenged by students in terms of their trustworthiness.

**Overall**

The text types in this task appear to provide affordances for deeper understanding of a complex event in American history. In the semi-structured interviews, students cited the affordances of the texts to provide them with a clearer picture of the nature of the
Gulf of Tonkin Incident. Video was cited by most as the preferred source with audio mentioned second. The think-aloud students cited the cartoon as the reason why images did not help them answer the inquiry question. The following excerpt from the semi-structured interview comes from Annaliz, who scored an 18 on the ACT reading test.

Michael: If you go to most websites, what would you tend to click on first? Text, video, audio.

Annaliz: Video.

Michael: You would go to video first. How come?

Annaliz: Cause it’s like, it’s just visual. You could see, you see more of like, more stuff than in a text.

Michael: Well, how about a picture?

Annaliz: Like a picture is like still. You won't see, cause like in the picture you won't see what happened. You won't think oh ok it happened over there and it’s coming like that or yeah.

Annaliz discussed her preference for video as a way to facilitate her understanding of the content. Initially, she commented on why she preferred video by specifically mentioning the content included in the Fog of War video. Later, when asked about the types of sources she gravitated towards when online, Annaliz explained that video gave her a better sense of the content. Consider how Bianca cited similar reasons for preferring multimodal sources.

Michael: Do you find yourself using more text or some of these other things when you’re like researching?

Bianca: Well it depends what you’re researching for
Michael: How about for history, let’s say.

Bianca: For history I think videos, I'd look for videos more because I think for history its easier cause once you have a visual image of what's happening instead of just reading it, reading it, sometimes you know they try to just paint a picture for you but it doesn’t always seem to work that way. Having video makes it easier to understand.

Bianca, like Annika, cited the affordances of video to provide a visual and auditory description of an event. In this case, Bianca stated that for studying history in particular, videos were her most accessible sources.

The second way that the multiple multimodal sources influenced students’ understandings while reading for the inquiry task was that they were presented as contradicted sources. Students consistently placed a high value on the inquiry task using 8 multimodal sources and stated that they were not just interested in the topic but also preferred the ability to read multiple points of view in order to come to a decision on their own about how the inquiry question should be answered. Readers at all levels of proficiency said that their interest in the task stemmed from their ability to construct their own arguments. Beatriz remarked about the variety of sources:

Michael: Three ok. How interested were you in doing this type of thing? Like you did I know in class you did it with Kennedy but how interested were you like in using the Internet, watching the videos looking at the, you know using a website to learn the content?

Beatriz: Probably 5.

Michael: How come?
Beatriz: It seems like, it has more resources and stuff. You've got more like opinions and things to back it up. Your opinion and it just its a hands on thing.

Annika also made similar comments.

Annika: Cause on, cause if you just have one video it’s just one person's opinion but if you have other videos its gonna be different opinions what like just different stuff. So instead of just being oh you know, that guy's true he so true but here it's like oh yeah he's so true but then you get more information and then you just like hold on, hold on is it really like that? And then you just start thinking and you change your perspective on the stuff other than just like a video, you are going to keep it up.

Annika: Its better because you have proof, like in the computer and all you have proof that the, like that happened and then it’s more like a visual aide making it more interesting than just like a packet and reading it cause most people are like oh, I don't want to read this but then if you give them video they'll, well they will watch the videos better than, for them it’s probably better than reading.

Michael: How about for you?

Annika: For me, I would rather um, watch the video cause it’s like. Cause there would be some parts that cause you know how some people put it wordy, like too many words and it’s just like ok its confusing but when you use
the video you see it a couple of times. You just like, hold on, hold on this happens and then you start getting up your own opinion about what really happened.

Miguel, a highly proficient reader, makes a similar but more sophisticated assertion that multimodal sources in this task provided more detailed points of view than typical traditional sources used in historical inquiry.

Miguel: Comparing that, I feel like that, that wasn't really entertaining cause it was just documents that we were going through. We weren't really like, there weren't multiple people's point of views, it was just one thing, that was going on to the same thing.

Michael: Well you had different people's point of view, right?

Miguel: Well yeah, but I'm saying like it was, most of them were for it, they weren't really getting much into detail with the information that was happening.

Michael: Ok, why do think that is? Do you think, why do you think it was less detailed, like less information, less detail?

Miguel: Maybe because it was just written out, they weren't showing it.

All three students demonstrated that a task could be motivating not only because of an interest in the types of sources, but because the sources illuminate multiple perspectives, making the concepts easier to discern than if only one perspective was represented.

Traditional sources may provide various perspectives but multimodal sources seem to make those perspectives more accessible for students to use to engage in historical inquiry.
The 51 students who engaged in the task were confronted with a complex inquiry task about an event that has been questioned by professional historians. Despite their lack of prior knowledge, the students in both the whole class and the think-aloud condition demonstrated their ability to interpret contradictory texts that utilized multiple modes of presentation. The types of text that students read served to facilitate their historical understanding of the Gulf of Tonkin Incident. Student understandings of the eight texts were influenced differently based on the text type. Video was the most cited source for students’ self-reported ability to understand the Gulf of Tonkin Incident. Audio elicited reported responses that the phone calls were trustworthy based on their authenticity. It also appeared that the primary source features were most important for students’ understandings. The phone call with McGeorge Bundy drew the highest ratings for both usefulness and trustworthiness. The political cartoon presented comprehension problems, while the voting recorded was cited as being very trustworthy. The level of interpretation demanded by the image influenced how the students were able to use the source to help answer the inquiry question. Despite the students’ ability to comprehend the sources, except for Vietscar, the students were not very critical about the origin of the source and why someone might produce the source. The next section analyzes which sources students were more likely to use in their essay responses to the inquiry question.

**Research Question 3**

The data used to analyze this research question included essays written by students in the whole class condition as well as the final usefulness and trustworthiness ratings at the end of the Internet inquiry task taken by the whole class and think-aloud participants. The student essay data and student reported usefulness and trustworthiness ratings were
used to triangulate the data to demonstrate the types of texts and modalities students were most likely to use in their essays after reading the eight multimodal sources. Students used a variety of the sources and did not use only one modality. The whole class condition and think-aloud protocols will be discussed followed by a comparison of the two conditions.

**Whole Class Condition**

The culmination of the whole class task occurred on the third day of the inquiry task. Students had a 45-minute period to respond to the question: Was President Lyndon Johnson justified in asking Congress for a resolution for war following the Gulf of Tonkin incident? Thirty-five essays were completed from the group of 43 participants, due to absences of 8 students across the two classes during one of the 3 days the task was implemented. The two classes represented two different ability tracks. College Prep students generally had lower reading scores but a high performing student could be in the class due to open enrollment. The Honors students generally had higher reading scores but students with lower reading scores could enroll in the Honors class. As described in Chapter 3, the 35 essays were scored using a historical reasoning and argumentation rubric (Monte-Sano, 2008). Historical reasoning was measured as the ability to use evidence from text to engage in complex historical interpretation. Historical argumentation was measured as the ability to generate a central claim based in textual evidence in response to the inquiry question. The goal of writing for historical argument was to integrate claims, evidence, and analysis. The number and types of sources were also tabulated in each essay. As described in Chapter 3, the College Prep course engaged in far less writing than the Honors class, especially on summative assessments prior to
this study. Both classes contained a range of ability as measured by the ACT but the Honors class averaged 5 points higher on the ACT test.

First, scores were tabulated using the rubric for argumentation. The mean score for all 35 students for argumentation was 2.7/5.0. The 17 College Prep students who wrote essays averaged 2.2/5.0 for argumentation and the 18 Honors students averaged a 3.2/5.0 for argumentation. As demonstrated in Table 4.15, student scores for argumentation were low for College Prep and average for Honors.

Table 4.15. Mean Essay Scores for Argumentation

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Prep</td>
<td>17</td>
<td>2.23</td>
<td>.903</td>
</tr>
<tr>
<td>Honors</td>
<td>18</td>
<td>3.16</td>
<td>.985</td>
</tr>
<tr>
<td>Overall</td>
<td>35</td>
<td>2.71</td>
<td>1.05</td>
</tr>
</tbody>
</table>

Next, scores were tabulated using the rubric for historical reasoning. The mean score for all 35 students for argumentation was 2.3/5.0. The 17 College Prep students averaged 2.2/5.0 for historical reasoning and the 18 Honors students averaged a 2.5/5.0 for historical reasoning. As demonstrated in Table 4.16, both College Prep and Honors students scored near or below average for historical reasoning.
Table 4.16. Mean Essay Scores for Historical Reasoning

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Prep</td>
<td>17</td>
<td>2.17</td>
<td>1.13</td>
</tr>
<tr>
<td>Honors</td>
<td>18</td>
<td>2.5</td>
<td>.857</td>
</tr>
<tr>
<td>Overall</td>
<td>35</td>
<td>2.31</td>
<td>.998</td>
</tr>
</tbody>
</table>

The Honors students had slightly higher scores in both argumentation and historical reasoning. The mean number of sources explicitly incorporated into students’ essays was 2.1 (range = 1 – 4). That is, the source of information was clear to the reader and not inferred. Fourteen students made the overall claim that President Johnson was justified in asking Congress for a resolution for war. Twenty students made the overall claim that President Johnson was not justified in asking Congress for a resolution for War. One student specifically stated that he was undecided on the question. An independent-t test revealed that no significant difference existed between College Prep students and Honors students’ historical reasoning scores $t(29) = -.925, p>.05$. An independent t test comparing College Prep students and Honors students’ argument scores did reveal a significant difference $t(29) =-2.88, p<.05$.

The text that was most often incorporated into the students’ essays was the *Fog of War*, a secondary source with participant accounts and primary source footage. Eighteen of the 35 essays (51.4%) explicitly referenced the *Fog of War*. The second most referenced source was Bill Moyers’ presentation of President Johnson’s phone call to National Security Advisor McGeorge Bundy. This was a combination secondary and primary source. Seventeen of the 35 essays (48.6%) explicitly referenced this source.
The most referenced primary source was the *Senate Voting Record*. Sixteen of the 35 essays (45.7%) explicitly referenced the *Senate Voting Record*. The 3 sources mentioned accounted for 69% of the total sources referenced in all 35 essays out of the 8 potential sources that could have been referenced.

**Table 4.17. Types of Sources Used In Essays**

<table>
<thead>
<tr>
<th>Source</th>
<th>Type</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction Text</td>
<td>Tertiary</td>
<td>6</td>
<td>8.1</td>
</tr>
<tr>
<td>Introduction Video</td>
<td>Secondary</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td><em>Fog of War</em></td>
<td>Participant Account/Secondary</td>
<td>18</td>
<td>24.3</td>
</tr>
<tr>
<td><em>Midnight Address</em></td>
<td>Primary</td>
<td>9</td>
<td>12.2</td>
</tr>
<tr>
<td>Bundy Phone Call</td>
<td>Secondary/Primary</td>
<td>17</td>
<td>23.0</td>
</tr>
<tr>
<td>McNamara Phone Call</td>
<td>Primary</td>
<td>7</td>
<td>9.5</td>
</tr>
<tr>
<td><em>Senate Voting Record</em></td>
<td>Primary</td>
<td>16</td>
<td>21.6</td>
</tr>
<tr>
<td><em>Vietscar</em></td>
<td>Primary</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>74</td>
<td>100</td>
</tr>
</tbody>
</table>

The two most cited sources were combinations of historical source types. The *Fog of War* made use of participant account with Robert McNamara as well as primary and secondary source footage. The phone call with McGeorge Bundy started as a secondary source introduction and then moved into a primary source audio recording. While the *Senate Voting Record* was a primary source, it made use of multiple primary sources. It appears that sources that contain a combination of historical source types were most salient for students to evidence in the written responses to the inquiry question.
The modality of the sources that were most referenced were video, audio, and image. The *Fog of War* video, the audio of the phone call between McGeorge Bundy and President Johnson, and the *Senate Voting Record* represented the three modalities. These 3 sources comprised 69% of the sources referenced and utilized text in conjunction with the visual aspects of the source. For example, the *Fog of War* contained embedded audio transcripts running across the bottom of the screen during the footage of the conversation between the admiral of the Maddox and Robert McNamara. The phone call with McGeorge Bundy contained a visual of the transcript of the conversation between President Johnson and National Security Advisor McGeorge Bundy. The *Senate Voting Record* contained text around the image of the vote tally as well as written responses from the two senators that voted no to the resolution.

Table 4.18. Types of Modalities Used in Essays

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>24</td>
<td>32.4</td>
</tr>
<tr>
<td>Image</td>
<td>16</td>
<td>21.6</td>
</tr>
<tr>
<td>Text</td>
<td>6</td>
<td>8.1</td>
</tr>
<tr>
<td>Video</td>
<td>28</td>
<td>37.8</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>99.9</td>
</tr>
</tbody>
</table>

Students also completed usefulness ratings for all of the texts at the end of reading all of the sources but before they wrote their essays (see Table 4.18). They selected as many sources they deemed to be most useful. Then they selected the single most useful source to help them answer the inquiry question.
Much like the sources the students actually integrated into their essays, these students in the whole class condition also rated sources like the *Fog of War*, the phone call with McGeorge Bundy, and the *Senate Voting Record* as very useful. It is interesting to note that while students rated the phone call with McNamara highly, they did not explicitly refer to the source in their essays with as much frequency. Students also frequently rated the introduction text and introduction video highly for usefulness but they did not specifically cite these two sources. It may be that the introduction text and video built the background knowledge necessary to understand the other sources and frame their overall argument.

**Table 4.19. Whole Class Usefulness Rating Frequency**

<table>
<thead>
<tr>
<th>Source</th>
<th>Single Most Useful</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction Text</strong></td>
<td>7</td>
<td>16.6</td>
</tr>
<tr>
<td><strong>Introduction Video</strong></td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td><em>Fog of War</em></td>
<td>14</td>
<td>33.3</td>
</tr>
<tr>
<td><em>Midnight Address</em></td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Bundy Phone Call</strong></td>
<td>6</td>
<td>14.3</td>
</tr>
<tr>
<td><strong>McNamara Phone Call</strong></td>
<td>9</td>
<td>21.4</td>
</tr>
<tr>
<td><em>Senate Voting Record</em></td>
<td>4</td>
<td>9.5</td>
</tr>
<tr>
<td><em>Vietscar</em></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>42</td>
<td>100</td>
</tr>
</tbody>
</table>

Students also rated the trustworthiness of the eight sources at the completion of the task but before they wrote their essays. They selected as many sources they deemed to
be most trustworthy. Then they selected the single most trustworthy source to help them answer the inquiry question. Students frequently cited the *Fog of War*, the two phone calls, and the *Senate Voting Record* as being highly trustworthy. These ratings are highly correlated with the ratings the students ascribed for usefulness (see Table 4.19). One notable distinction was the number of students who rated the *Midnight Address* video as being trustworthy but only 9 students cited that source explicitly in their essay.

**Table 4.20. Whole Class Trustworthiness Rating Frequency**

<table>
<thead>
<tr>
<th>Source</th>
<th>Single Most Trustworthy</th>
<th>Percentage</th>
<th>Most Trustworthy</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction Text</td>
<td>2</td>
<td>4.8</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td>Introduction Video</td>
<td>1</td>
<td>2.4</td>
<td>9</td>
<td>6.9</td>
</tr>
<tr>
<td><em>Fog of War</em></td>
<td>7</td>
<td>16.6</td>
<td>19</td>
<td>14.5</td>
</tr>
<tr>
<td><em>Midnight Address</em></td>
<td>5</td>
<td>11.9</td>
<td>16</td>
<td>12.2</td>
</tr>
<tr>
<td>Bundy Phone Call</td>
<td>9</td>
<td>21.4</td>
<td>27</td>
<td>20.6</td>
</tr>
<tr>
<td>McNamara Phone Call</td>
<td>8</td>
<td>19.0</td>
<td>27</td>
<td>20.6</td>
</tr>
<tr>
<td><em>Senate Voting Record</em></td>
<td>10</td>
<td>23.8</td>
<td>24</td>
<td>18.3</td>
</tr>
<tr>
<td><em>Vietscar</em></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42</strong></td>
<td><strong>100</strong></td>
<td><strong>131</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Students in the whole class task predominately used three texts into their essays. The *Fog of War*, the phone call with McGeorge Bundy, and the *Senate Voting Record* were the most prevalent sources cited in the students’ essays and
were among the highest rated sources for both usefulness and trustworthiness (see Table 4.19 & 4.20).

**Think-aloud Participants**

Think-aloud participants did not write an essay at the completion of the task because they engaged in a semi-structured interview immediately following their think-aloud protocol. At the end of the task they did record usefulness and trustworthiness ratings for all of the texts. These ratings provided insights as to how they used the sources to reason across the multiple texts in this task.

The eight think-aloud students chose texts that were most useful for them to answer the question that were congruent with the majority of the sources integrated into the essays completed by the whole class task condition. The source cited to be the single most useful by 4 students was the phone call with McGeorge Bundy. The second most useful source rated by students was the phone call with Robert McNamara.

The sources deemed to be most useful by the students in the think-aloud condition when asked to list all of the sources that would be most useful were seven students each choosing the phone call with McGeorge Bundy, the phone call with Robert McNamara, and the introduction video. Six students chose the *Fog of War* as one of the most useful sources. Table 4.21 shows the sources that were rated as the most useful by the students in the think-aloud condition. The phone call with McGeorge Bundy garnered the most ratings for being the single most useful and was consistently rated as one of the most useful.

**Table 4.21. Think-aloud Usefulness Rating Frequency**
Table 4.22 provides the trustworthiness ratings for the think-aloud condition. Again, the phone call with McGeorge Bundy garnered the highest ratings.

The sources deemed to be the most trustworthy by students were congruent with their usefulness ratings. Four students chose the phone call with McGeorge Bundy to be the single most trustworthy source. Two students chose the Senate Voting Record as the single most trustworthy source. When asked to list as many sources as students found to be most trustworthy, 7 students chose the phone call with McGeorge Bundy, 7 students chose the phone call with Robert McNamara, and 6 students chose the Senate Voting Record. Five students chose the Fog of War Video.
The comparisons between the students in the whole class condition and the students in the think-aloud condition were very similar. The top 3 sources used by students in their essays were the *Fog of War*, the phone call with McGeorge Bundy, and the *Senate Voting Record*. The think-aloud condition rated the phone call with McGeorge Bundy as both highly useful and trustworthy along with the *Fog of War*. Fewer students chose the *Senate Voting Record* as most useful but it rated highly for trustworthiness. Like the whole class condition, usefulness ratings were also high for the McNamara phone call and introduction video. While students did not explicitly reference the introduction video, they may have used the background information to frame their argument.
Even though all of the texts were multimodal in nature and most were primary sources, the sources that were most used in the student essays and that garnered the highest usefulness and trustworthiness ratings were multifaceted based on historical source type and modality.

Students in both conditions utilized and rated texts that made use of multiple historical characteristics as well as multiple modalities. The texts that were most referenced in the 35 essays and rated highly for usefulness and trustworthiness were sources that contained both secondary and primary source information and direct participant accounts, like the interview with McNamara or the recordings of the phone calls. The modalities employed by the same texts included combinations of visual and textual information. The Fog of War made use of radio communication between McNamara and the men on the Maddox. Those radio broadcasts were also transcribed and ran across the screen. The phone call with McGeorge Bundy also provided a running transcript of the call on the screen. The Senate Voting Record contained text to explain the votes as well as texts of the two dissenting senators.

It may be that the presence of multiple source types within a multimodal source, accompanied by multiple modalities including text, facilitated student integration of sources in their final essays or final evaluations of the inquiry question. Additionally, students’ perception of usefulness and/or trustworthiness appeared to play a role in their inclusion as well. As described early in the section on source influence, students’ reasons for rating a source for its usefulness was based on the content provided in the source (see Table 4.12 & 4.13). 78.8% of
comments about the rationale behind a usefulness rating were based on the content of the source. The reasons students provided for trustworthiness were more divided. 34.4% of the comments for the reason for a trustworthiness rating were based on content, while 41.3% were based on the source attributes, and 17.2% were based on the salient features of the modality. The sources that were rated as most useful (Bundy phone call, Fog of War, Senate Voting Record) were the sources that were most integrated into student essays. Two of sources that were rated as most trustworthy (Bundy phone call, Senate Voting Record, Midnight Address) were the sources that were most integrated.

These data suggest that perceived usefulness and trustworthiness determined what sources students used in their essays. Student essays made use of all three modalities, making it difficult to determine the salient features of each modality and how those features might have influenced a student to answer the inquiry question. It may be that the presence of multimodal sources facilitated increased historical thinking for students. This data also suggests that students struggled to integrate sources into their written essays but were able to reason with the sources.

The inability for students to communicate their reasoning through writing an essay may not reveal how they were actually reasoning across the texts. Perhaps the lack of prose made it harder to produce a written product. This data shows that students were able to use multiple sources in their writing but struggled to demonstrate a sophisticated level of historical reasoning or argumentation. The next section demonstrates how individual characteristics like
prior knowledge, domain interest, topic interest, and situational interest impact student ability to reason across multiple multimodal sources and how they use them to create a historical argument.

**Research Question 4**

The 43 question student survey, prior knowledge measure, ACT Reading test scores, student usefulness and trustworthiness ratings, student essay scores, and the types of sources students used in their essays were used to measure how topic knowledge, topic interest, situational interest, and reading ability contributed to student ability to use the ideas from multiple multimodal sources in their essays. The Model of Domain Learning (Alexander, 1997, 2003) suggests that topic knowledge, situational interest, and topic interest are all factors in students’ domain knowledge. Since two tracked classes completed the task, it was also determined to investigate the role of reading ability on the use of historical sources in the student essays.

**Data Screening**

**Missing data.**

Forty-three students were enrolled in the two classes but over the course of the three-day task, student absences led to the collection of 35 essays and 31 complete data sets. Some random missing data was present for usefulness and trustworthiness ratings. Missing data were excluded pairwise only if the missing data was needed for the analysis. As a result, sample sizes for different analyses vary as a result of missing data.

**Evaluation of Statistical Assumptions**
Normality.

Each variable was tested for normality by evaluating the descriptive statistics provided by SPSS. Any variables that were not in the appropriate range of data were located and corrected. Next, skewness and kurtosis were evaluated visually. Tabachnick and Fidell (2007) recommend analyzing the shape of the distribution of scores by using a histogram to represent the spread of scores. Some of the measures were negatively skewed because students had a high interest in a particular modality. Finally, the Shapiro-Wilk test for normality indicated violations to normality for some of the interest measures like interest in video (Table 4.23).
### Table 4.23. Tests of Normality: Interest Measures

<table>
<thead>
<tr>
<th></th>
<th>Level</th>
<th>Shapiro-Wilk</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest in the Gulf of Tonkin</strong></td>
<td>College Prep</td>
<td>.832</td>
<td>.013</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>.899</td>
<td>.065</td>
</tr>
<tr>
<td><strong>Interest in the Task</strong></td>
<td>College Prep</td>
<td>.865</td>
<td>.036</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>.874</td>
<td>.026</td>
</tr>
<tr>
<td><strong>Topic Interest</strong></td>
<td>College Prep</td>
<td>.928</td>
<td>.287</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>.929</td>
<td>.209</td>
</tr>
<tr>
<td><strong>Interest in American History</strong></td>
<td>College Prep</td>
<td>.616</td>
<td>.000</td>
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<tr>
<td></td>
<td>Honors</td>
<td>.870</td>
<td>.022</td>
</tr>
<tr>
<td><strong>Interest in the Vietnam War</strong></td>
<td>College Prep</td>
<td>.867</td>
<td>.038</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>.923</td>
<td>.168</td>
</tr>
<tr>
<td><strong>Interest in Video</strong></td>
<td>College Prep</td>
<td>.688</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>.658</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Interest in Audio</strong></td>
<td>College Prep</td>
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<td>.028</td>
</tr>
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<td></td>
<td>Honors</td>
<td>.755</td>
<td>.001</td>
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<td>.046</td>
</tr>
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<td></td>
<td>Honors</td>
<td>.886</td>
<td>.040</td>
</tr>
<tr>
<td><strong>Interest in Cartoon</strong></td>
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<td>.002</td>
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<td></td>
<td>Honors</td>
<td>.892</td>
<td>.051</td>
</tr>
<tr>
<td><strong>Interest in Text</strong></td>
<td>College Prep</td>
<td>.822</td>
<td>.010</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>.893</td>
<td>.052</td>
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</table>
Table 4.24. Descriptive Statistics for Interest Measures

<table>
<thead>
<tr>
<th>Interest in Video</th>
<th>Level</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Prep</td>
<td>14</td>
<td>4.5714</td>
<td>.64621</td>
<td></td>
</tr>
<tr>
<td>Honors</td>
<td>17</td>
<td>4.3529</td>
<td>1.05719</td>
<td></td>
</tr>
<tr>
<td>Interest in Audio</td>
<td>College Prep</td>
<td>14</td>
<td>2.7857</td>
<td>1.12171</td>
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<tr>
<td>Honors</td>
<td>17</td>
<td>2.8824</td>
<td>.85749</td>
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</tr>
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<td>2.6429</td>
<td>1.08182</td>
</tr>
<tr>
<td>Honors</td>
<td>17</td>
<td>2.4706</td>
<td>.94324</td>
<td></td>
</tr>
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<td>Interest in Cartoon</td>
<td>College Prep</td>
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<td>3.2857</td>
<td>.91387</td>
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<td>Honors</td>
<td>17</td>
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<td>1.27764</td>
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<td>2.1429</td>
<td>1.16732</td>
</tr>
<tr>
<td>Honors</td>
<td>17</td>
<td>2.4118</td>
<td>.93934</td>
<td></td>
</tr>
<tr>
<td>Interest in American History</td>
<td>College Prep</td>
<td>14</td>
<td>3.3571</td>
<td>.49725</td>
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<tr>
<td>Honors</td>
<td>17</td>
<td>3.9412</td>
<td>.89935</td>
<td></td>
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<tr>
<td>Interest in the Vietnam War</td>
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<td>3.2143</td>
<td>1.18831</td>
</tr>
<tr>
<td>Honors</td>
<td>17</td>
<td>3.2941</td>
<td>1.10480</td>
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<td>Interest in the Gulf of Tonkin</td>
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<td>3.0000</td>
<td>1.03775</td>
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<tr>
<td>Honors</td>
<td>17</td>
<td>3.5294</td>
<td>1.12459</td>
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</tr>
<tr>
<td>Interest in the Task</td>
<td>College Prep</td>
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<td>3.7857</td>
<td>1.25137</td>
</tr>
<tr>
<td>Honors</td>
<td>17</td>
<td>3.7647</td>
<td>1.14725</td>
<td></td>
</tr>
<tr>
<td>Topic Interest</td>
<td>College Prep</td>
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<td>3.1071</td>
<td>.90253</td>
</tr>
<tr>
<td>Honors</td>
<td>17</td>
<td>3.4118</td>
<td>.95583</td>
<td></td>
</tr>
</tbody>
</table>

Survey Analysis

The 43-item survey was analyzed for internal consistency using Cronbach’s alpha. The Cronbach alpha coefficient for this survey was .84. Bartlett’s Test of Sphericity (Bartlett, 1954) reached statistical significance (p<.000). However, when the survey items for interest in modality were subjected to principal factor analysis, the Kaiser-Meyer-Olkin Measuring of Sampling Adequacy (KMO) was .544 which falls below the recommended value of .6 (Kaiser, 1970, 1974). Principle components analysis revealed the presence of seven components with eigenvalues exceeding 1, explaining
18.0 percent, 15.8 percent, 10.6 percent, 7.7 percent, 6.3 percent, 6.0 percent, and 5.2 percent of the variance. Analysis of the scree plot demonstrated a break after the fifth component. After performing Promax rotation, the solution demonstrated no clear structure. Several variables were doubled loaded and the identified variables based on modality overlapped. For example, one component loaded factors that included video and audio. The strongest component was the first factor, which contained printed text materials. However, the second through fifth factors all contained multiple types of modalities. Based on these results, no clear subgroups of preferred modalities could be compared.

As a result of the inconclusive factor analysis for the types of preferred modalities, a determination was made to evaluate situational interest by using the individual items on the survey that matched the texts that were a part of the task (see Table 4.3). Additionally, domain interest was measured using the individual item on the survey that measured interest in American History. Student interest in the topic (individual interest) was chosen from the student rankings of their interest in the Gulf of Tonkin and their interest in the Vietnam War (topic interest). Student interest in the task (situational interest) was measured by their five-point Likert scale response at the end of the task. The open-ended prior knowledge measure scores were tabulated and reading ability was measured by students’ ACT Reading test scores (see Table 4.25). These items were used to measure relationships of the constructs the make up the Model of Domain Learning (Alexander, 1997, 2003).
Table 4.25. Survey Items

<table>
<thead>
<tr>
<th>Knowledge/Interest</th>
<th>Survey Measure</th>
<th>Mean (CP)</th>
<th>Mean (H)</th>
<th>Std. Dev. (CP)</th>
<th>Std. Dev. (H)</th>
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</thead>
<tbody>
<tr>
<td>Domain Interest</td>
<td>Interest in US History</td>
<td>3.36</td>
<td>3.94</td>
<td>.497</td>
<td>.899</td>
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<td>Topic Knowledge</td>
<td>Prior Knowledge Measure</td>
<td>4.57</td>
<td>4.88</td>
<td>1.55</td>
<td>2.00</td>
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<tr>
<td>Individual Interest</td>
<td>Interest in Vietnam War</td>
<td>3.21</td>
<td>3.29</td>
<td>1.19</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>Interest in Gulf of Tonkin</td>
<td>3.0</td>
<td>3.52</td>
<td>1.04</td>
<td>1.12</td>
</tr>
<tr>
<td>Situational Interest</td>
<td>Interest in Task</td>
<td>3.79</td>
<td>3.76</td>
<td>1.25</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td>Interest in YouTube</td>
<td>4.57</td>
<td>4.35</td>
<td>.646</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>Interest in Audio</td>
<td>2.79</td>
<td>2.88</td>
<td>1.12</td>
<td>.857</td>
</tr>
<tr>
<td></td>
<td>Interest in Pol. Cartoons</td>
<td>3.29</td>
<td>3.41</td>
<td>.914</td>
<td>1.28</td>
</tr>
<tr>
<td></td>
<td>Interest in Graphs/Charts</td>
<td>2.64</td>
<td>2.47</td>
<td>1.08</td>
<td>.943</td>
</tr>
<tr>
<td></td>
<td>Interest in Text</td>
<td>2.14</td>
<td>2.41</td>
<td>1.17</td>
<td>.939</td>
</tr>
<tr>
<td>Reading Ability</td>
<td>ACT Reading Test</td>
<td>17.9</td>
<td>23.0</td>
<td>5.43</td>
<td>3.34</td>
</tr>
</tbody>
</table>

Moderate violations of normality existed and the factor analysis was inconclusive. As a result, these analyses lack statistical power for three main reasons.

1) A small sample size (n=31) was not powerful enough to demonstrate differences between students through multiple regression (Tabachnik & Fidell, 2007).
2) The items to measure interest in modalities on a five point Likert scale were not sensitive enough. For example a ceiling effect was observed with student interest in video. (M=4.28 SD = .960)
3) The items measured on the interest survey did not clearly match the types of sources that were utilized in the task.

As a result of these problems with the survey instrument it is important to note that conclusions drawn from these data are tenuous. Data will be reported and compared with
data from written responses that were used to explain Likert scale ratings of usefulness and trustworthiness and with the student essays.

**Essay Analysis**

Student essays were scored on two dimensions based on the rubric described in Chapter 3. The means and standard deviations for each level are recorded for the historical reasoning score and the argument score.

**Table 4.26. Essay Scores**

<table>
<thead>
<tr>
<th></th>
<th>Level</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Argumentation Score</strong></td>
<td>College Prep</td>
<td>14</td>
<td>2.2143</td>
<td>.80178</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>17</td>
<td>3.1765</td>
<td>1.01460</td>
</tr>
<tr>
<td><strong>Historical Reasoning Score</strong></td>
<td>College Prep</td>
<td>14</td>
<td>2.1429</td>
<td>1.09945</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>17</td>
<td>2.4706</td>
<td>.87447</td>
</tr>
</tbody>
</table>

Due to a small sample size (n=31), Pearson product-moment correlation coefficients were conducted instead of multiple regression to demonstrate the relationship between situational interest in modality and the presence of a particular modality in student essays (Tabachnik & Fidell, 2007). Preliminary analyses were conducted to ensure no violations of assumptions of normality, linearity, and homoscedasticity. Violations of normality were found in the reported interest in video. A ceiling effect was found for student interest in video (M=4.28, SD = .960). The results of the Pearson product –moment correlations are provided in Table 4.27.
Table 4.27. Modality Interest and Use

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Video in Essay</td>
<td>1</td>
<td>.065</td>
<td>.210</td>
<td>-.265</td>
<td>-.260</td>
<td>-.275</td>
<td>.100</td>
<td>-.389*</td>
<td>.287</td>
<td>.061</td>
</tr>
<tr>
<td>2. Audio in Essay</td>
<td></td>
<td>.065</td>
<td>1</td>
<td>-.004</td>
<td>.135</td>
<td>-.225</td>
<td>-.080</td>
<td>.228</td>
<td>.071</td>
<td>-.068</td>
</tr>
<tr>
<td>3. Chart in Essay</td>
<td></td>
<td></td>
<td>.210</td>
<td>-.004</td>
<td>1</td>
<td>-.166</td>
<td>-.045</td>
<td>.050</td>
<td>.018</td>
<td>-.111</td>
</tr>
<tr>
<td>4. Cartoon in Essay</td>
<td></td>
<td></td>
<td></td>
<td>-.265</td>
<td>.135</td>
<td>-.166</td>
<td>1</td>
<td>.416*</td>
<td>.115</td>
<td>.031</td>
</tr>
<tr>
<td>5. Text in Essay</td>
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<td></td>
<td></td>
<td>-.260</td>
<td>-.225</td>
<td>-.045</td>
<td>.416*</td>
<td>1</td>
<td>.175</td>
<td>-.202</td>
</tr>
<tr>
<td>6. Interest in Video</td>
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<td></td>
<td></td>
<td></td>
<td>-.275</td>
<td>.080</td>
<td>.050</td>
<td>.115</td>
<td>.175</td>
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<tr>
<td>7. Interest in Audio</td>
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<td></td>
<td></td>
<td></td>
<td>.100</td>
<td>.228</td>
<td>.018</td>
<td>.031</td>
<td>-.202</td>
<td>.320</td>
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<tr>
<td>8. Interest in Charts</td>
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<td></td>
<td></td>
<td></td>
<td>-.389*</td>
<td>.071</td>
<td>-.111</td>
<td>.084</td>
<td>.023</td>
<td>.050</td>
</tr>
<tr>
<td>9. Interest in Cartoon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.287</td>
<td>-.068</td>
<td>-.294</td>
<td>-.226</td>
<td>-.222</td>
<td>.339</td>
</tr>
<tr>
<td>10. Interest in Text</td>
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<td></td>
<td></td>
<td></td>
<td>.061</td>
<td>-.053</td>
<td>-.194</td>
<td>-.052</td>
<td>-.039</td>
<td>-.363*</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

No significant correlations existed between the levels of a student’s interest in a particular modality and the student’s use of that modality in their essay. Because no significant correlations existed, a determination was made to measure the relationships of student knowledge and interest with the student essay scores and their reading ability.

Again, due to low sample size (n=31), Pearson product-moment correlation coefficients were conducted instead of multiple regression. Preliminary analyses were conducted to ensure no violations of assumptions of normality, linearity, and
homoscedasticity. The results of the Pearson product–moment correlations are provided in Table 4.28. There was a positive correlation between the student’s ACT Reading score and their argument score on the essay \( r = .377, n = 31, p < .05 \), with higher reading score equating with higher argument scores. A positive correlation was indicated for prior knowledge and argument score \( r = .360, n = 31, p < .05 \). Finally, a strong positive correlation was found between historical reasoning score and argument score \( r = .712, n = 31, p < .01 \). These results indicate that domain interest, topical interest, and task interest were not related to overall quality of student essay. More importantly, reading ability and prior knowledge were not related to historical reasoning but were related to historical argument. This suggests that regardless of prior knowledge or reading ability, students were capable of reasoning across multiple multimodal documents. They were not as able to construct higher quality historical arguments if a lack of prior knowledge or reading ability existed.
Table 4.28. Interest, Knowledge, Ability, and Essay Correlations

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>1. ACT Reading Score</td>
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<td>.133</td>
<td>.253</td>
<td>.377</td>
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<td>2. Interest in American History</td>
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<td>.059</td>
<td>-.226</td>
<td>.139</td>
<td>.099</td>
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<td>3. Interest in the Topic</td>
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<td>.034</td>
<td>1</td>
<td>.318</td>
<td>-.064</td>
<td>-.045</td>
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<td>4. Interest in the Task</td>
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<td>-.009</td>
<td>.121</td>
<td>1</td>
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<td>.036</td>
<td>-.105</td>
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<tr>
<td>5. Prior Knowledge</td>
<td>.133</td>
<td>-.226</td>
<td>.067</td>
<td>-.314</td>
<td>1</td>
<td>.278</td>
<td>.360</td>
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<tr>
<td>6. Historical Reasoning Score</td>
<td>.253</td>
<td>.139</td>
<td>-.078</td>
<td>.036</td>
<td>.278</td>
<td>1</td>
<td>1.712</td>
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<tr>
<td>7. Argument Score</td>
<td>.377</td>
<td>*.099</td>
<td>-.142</td>
<td>.105</td>
<td>.360</td>
<td>*.712</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Because no correlations between domain interest, topic interest, situational interest, or reading ability and the students’ essay scores for historical reasoning were found to be present and a relationship between prior knowledge and student ability to construct a historical argument existed, a follow-up analysis was conducted of student usefulness and trustworthiness ratings with four experts’ ratings to determine if students were evaluating historical texts in ways that experts might. A one-way between groups analysis of variance was conducted to explore the impact of domain knowledge on perceived usefulness and trustworthiness of the six sources embedded in the task. The subjects were divided by level of the course (College Prep and Honors) or as experts. There was no significant difference among the three groups for usefulness of the Fog of War [F(2, 32)=2.47, p>.05)], the phone call with McNamara [F(2, 31)=1.15, p>.05]), the phone call with Bundy [F(2, 31)=2.55, p>.05]), the Senate Voting Record [F(2, 30)=2.47, p>.05]),
and the *Midnight Address* [F(2, 31)=3.23, p>.05)]. There were significant differences among groups for the usefulness of the *Vietscar* [F(2, 30)=6.09, p>.05)]. Post hoc comparisons using the Tukey HSD test indicated the mean score for experts (M=2.25, SD=.50) was statistically different from the College Prep students (M=3.21, SD=1.05) and the Honors students (M=1.933, SD=1.03).

There were no significant differences among the three groups for the trustworthiness of the *Fog of War* [F(2, 32)=.91, p>.05)], the phone call with McNamara [F(2, 31)=1.05, p>.05)], the phone call with Bundy [F(2, 30)=1.49, p>.05)], *Vietscar* [F(2, 31)=.237, p>.05)], and the *Midnight Address* [F(2, 31)=2.05, p>.05)]. There were significant differences among the groups for the usefulness of the *Senate Voting Record* [F(2, 30)=3.56, p>.05)]. Post hoc comparisons using the Tukey HSD test indicated the mean score for experts (M=5.0, SD=.000) was statistically different from the College Prep students (M=8.86, SD=.770) but not for the Honors students (M=4.35, SD=.862).

Despite reaching statistical significance, a violation of homogeneity based on Levene’s test was less than .05. A follow-up using Welsh and Brown Forsythe demonstrated a lack of variance for the expert group because all four experts rated the *Senate Voting Record* a five for trustworthiness. The significance of the differences between the experts and the College Prep students is actually quite small (Table 4.29 & 4.30).
<table>
<thead>
<tr>
<th>Source</th>
<th>Level</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
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<td>.71743</td>
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<td>4.0000</td>
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<td></td>
<td>Experts</td>
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</table>
Because the ratings of students mirrored each other regardless of class level and expertise, I investigated whether or not the level of the student’s course impacted students’ final essays reasoning that students in different levels of classes participated in different instructional activities. Student ACT Reading scores were co-varied to detect any differences in student essays based on reading ability. A one-way between groups analysis of co-variance was conducted to compare students’ historical reasoning scores. The independent variable was the level of the student (College Prep vs. Honors) and the dependent variable was the essays scored for historical reasoning. Data were screened and there were no violations of the assumptions of normality, linearity, homogeneity of regression slopes, and a reliable measurement of the covariate was obtained. After controlling for ACT reading scores, there was no significant difference between the level of the class and the historical reasoning scores for the student essays \([F(1,29)=.062, \ p=.81, \ \text{partial } \eta^2=.002]\). There was virtually no difference for class level and historical reasoning scores on student essays when reading ability was co-varied.

**Table 4.31. Historical Reasoning**

<table>
<thead>
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<th>Level</th>
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<td>Honors</td>
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<tr>
<td>Total</td>
<td>2.3226</td>
<td>.97936</td>
<td>31</td>
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</tbody>
</table>

Finally, a one-way between groups analysis of co-variance was also conducted to compare students’ argument scores. The independent variable was the level of the student (College Prep vs. Honors) and the dependent variable was the essays scored for
historical reasoning. Students’ ACT Reading scores were used as a covariate in this analysis. Data were screened and there were no violations of the assumptions of normality, linearity, homogeneity of regression slopes, and a reliable measurement of the covariate was obtained. After adjusting for ACT reading scores, there was no significant difference between the level of the class and the argument scores for the student essays \[ F(1,29)=3.581, p=.069, \text{ partial eta squared } = .11 \]. There was also no difference between class levels for argument scores for student essays when reading ability was co-varied.

Table 4.32. Argument Scores

<table>
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<th>Level</th>
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<th>Std. Deviation</th>
<th>N</th>
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<tr>
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<td>Honors</td>
<td>3.1176</td>
<td>.92752</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>2.7097</td>
<td>.97275</td>
<td>31</td>
</tr>
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</table>

The data suggests that for this sample of students (n=31), the presence of multimodal texts may have provided students with opportunities to engage in historical thinking that mirrored the thinking of more proficient readers and the experts. However, it is unclear what particular modality or modalities might be influencing students’ historical thinking based on the analyzed data. Because some univariate assumptions were violated, future data needs to be collected with a larger sample to produce more robust findings. Additionally, the survey instrument needs to be revised to reflect the nature of texts used in the task to detect potential differences between modalities (video, audio, image, text). In order to analyze the findings reported in this section, student
responses for their usefulness and trustworthiness ratings were analyzed to find how modality might be influencing their essay responses.

Generalizations to different populations from this sample cannot be made because it only reflects two classes of American History, but the results provide insights for future research on student reading of multiple multimodal sources in a digitized environment. It appears that based on the findings through these correlations, it may not be that multimodal texts facilitated text use itself, but fostered complex historical reasoning. Students wrote essays that were similar in the demonstration of historical reasoning regardless of reading ability, but prior knowledge and reading ability did contribute to the students’ ability to argue historically. These findings suggest that multimodal sources can facilitate complex thinking for all students but scaffolds are still critical to help students translate their historical reasoning into complex historical arguments. Essay scores demonstrate that students’ ability to communicate their historical analysis through written argument is at the level of acclimation.

This chapter provided data analysis for the four research questions. Data were analyzed to find out how students read the texts presented, how the texts mediated student understandings of the event, what sources students used to answer the inquiry question, and how topic knowledge, domain interest, topic interest, situational interest, and reading ability contributed to the quality of student responses to the inquiry question. The next chapter provides a deeper analysis of two students from the think-aloud condition to demonstrate how a more proficient reader and a less proficient reader compare while engaged in the inquiry task.
CHAPTER 5
TWO CASE STUDIES

The purpose of this chapter is to provide a more in-depth analysis of two students who completed the inquiry task in the think-aloud condition. The focus of the analysis on these two cases is to illuminate how two specific students read across multiple multimodal texts, how those multimodal texts mediated their historical understandings, what specific sources they might integrate into a response to the inquiry question, and how their knowledge and interest impacted their reading. The second purpose is to provide a comparison and contrast of two students with different reading proficiencies. Two students were chosen to highlight the possibilities that the use of multiple multimodal sources for historical inquiry can impact student learning. The first case study is Michele (pseudonym), the most capable reader in the study. Michele scored a 31 on her ACT reading test. The second case study is Jovany (pseudonym). Jovany scored an 18 on his ACT reading test. The cases will be presented sequentially with a discussion of the two students at the end of the chapter.

These two students were selected from the eight students who conducted think-aloud protocols because they represented a stark contrast in reading ability and school performance, yet engaged with the task in a very similar manner. As Chapter 4 provided data analysis for the ways that students read across multiple multimodal texts, how those texts influenced students’ understandings, and how interest, prior knowledge, and reading ability impacted student writing about those same texts, the intention of this chapter is to demonstrate how two different readers reasoned through the task in very similar manners. Table 5.1 shows a comparison of the reading behaviors of both students.
Table 5.1. Comparison of Michele and Jovany

<table>
<thead>
<tr>
<th></th>
<th>Michele</th>
<th>Jovany</th>
</tr>
</thead>
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<td></td>
</tr>
<tr>
<td>ACT Score</td>
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<td>18</td>
</tr>
<tr>
<td>Historical Thinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments</td>
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<td>6</td>
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<td>105</td>
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<td>19</td>
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<td>Contextualization</td>
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<td>14</td>
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<tr>
<td>Corroboration</td>
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<td>Historical Analysis</td>
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<td>Location of Comments</td>
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<td>Task</td>
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</table>

**Michele**

Michele was the highest academic performer in the sample of students in the think-aloud condition and in the whole class condition. She scored a 31 on the ACT Reading test and consistently earned A’s in her coursework. Michele indicated her preference for history and her interest in the Vietnam War. She also was comfortable navigating the Internet. When asked about her frequency of computer use in her post task interview she stated, “Oh my gosh almost,
probably like every day. I'm doing school stuff like writing and going on the Internet and like doing all that stuff.” She was a student who excelled in academic tasks and was interested in history, Vietnam, and using multimodal sources.

Michele conducted the task by reading all of the documents in descending order. After reading the introduction text and watching the introduction video, her initial opinion was that Johnson was not justified because, “the movie really showed that like we kinda were like the first ones to initiate the fighting really. And that in fact that like the Maddox didn't um, take any damage really but we sunk two of the PT ships. That kinda makes me like think that something isn't right.” She proceeded to the watch the first video, the Fog of War.

**Historical Thinking**

Similar to the entire group, Michele used more general sense making strategies when she read across all of the sources. Parallel to the group statistics, 62% of her think-aloud statements were made at the sense making or mentalization level. When she made these statements they were mainly evaluative and elaborative. Interestingly, she also made the highest number of value statements (15) but also had the largest number of total think-aloud comments (166). Michele also made 12 historical analysis statements, which was double the number of the next person, who made six statements. See table 5.1 for a breakdown of Michele’s think-aloud comments by level of historical thinking.

Within the levels of historical thinking revealed how a more proficient reader like Michele reasoned through the sources. For example, Michele made 103 think-aloud comments at the sense making level. From those 103 comments, Michele made 71 think-aloud comments that indicated more complex reading behaviors like evaluation, elaboration, questioning the veracity of the text, and making an inference. As might be expected, Michele performed as a highly
proficient reader might when reading a source.

Michele utilized the historical thinking heuristics of sourcing 16.9% of the time and corroboration 4.8% of the time but only made one contextualization (.6%). Despite a limited number of the use of historical thinking heuristics, Michele followed up sourcing or corroboration with a historical analysis comment or comments following the use of the heuristic. Below are examples of Michele’s sourcing, corroboration, and historical analysis.

The first source that Michele read was the video, the *Fog of War*. Once she read the source information for the *Fog of War*, she evaluated the source by stating, “Ok first of all, um if it’s a documentary, I feel that it's going to be pretty accurate and that they have like real interviews with the people who were actually witness to this event.” She approached the video by sourcing for the reliability of the source based on its content. Her evaluation was based on the authenticity of the source because people were “there”. She repeated a similar statement when she watched the next video, the *Midnight Address*.

Michele: (Reading) The following is a video of President Lyndon Johnson's Address to the American people on television 11:30 pm August 4th, 1964.

Michele: Ok so this is what the President is saying so it’s what he heard from like the other, like the guys who were actually there. Michele evaluated most of the other sources based the authenticity of the source. When she evaluated the political cartoon, she rated it low for trustworthiness because it was not based on “facts”.

At the end of the task, Melissa rated her top sources for trustworthiness based on how she evaluated them during the task.
Michele: The other ones I felt were pretty trustworthy because they're sources seem like they would really be reliable. It didn't really have anybody that was not like an expert or anything just saying. It was people who had been there like witnesses that had seen and like heard and like had been part of the whole incident.

Consistently, Michele approached the task by using her knowledge of the discipline of history as such that source reliability is important to reading the source. She used the sourcing heuristic for 16.9% of her think-aloud statements.

Michele made 8 corroboration comments throughout the think-aloud protocol. While this only constituted on 4.8% of her total comments, she followed each corroboration comment with a follow-up historical analysis comment or comments. First, I will focus on Michele’s corroborations and then discuss her historical analysis. Michele corroborated the most with video, but made at least one corroborating comment for each text type. She corroborated the introduction text with her own prior knowledge but every other corroboration was made with a source that was a part of the overall text set. In the following example Michele noted a discordance between the Introduction video and the Fog of War.

Michele: In the other one that we watched it said that or in the introduction I think, it said that like the Turner Joy didn't really it didn't um report any unidentified like sonar or whatever. They didn't detect anything but in this it’s saying they both like um, agreed that there was like something there.

In this example, Michele notes the different reports from the two videos. She later used the information from these two videos to corroborate what the Midnight Address presented.
Initially, within the first thirty seconds Michele paused the video and made the following comments.

Michele: He kinda says like the repeated acts of violence against the United States but he really, he kinda says that but like he doesn't really go into depth about how what happened like on the days, he doesn't really tell any of the American people what really went down and like how they got or they found one torpedo or that um, the sonar might not have been read correctly he doesn't really go into any of that which obviously he doesn't go into it because he doesn't want like the American people to like know that stuff that they don't know for sure if there was an attack but that's kinda like dumb.

She corroborated Johnson’s claims with the reports from the *Fog of War* to make the assertion that Johnson was hiding some important details from the American people. Later in the video, Michele paused again to make an updated claim about Johnson’s justification for the Tonkin Gulf Resolution.

Michele: Um, he's kinda just saying that like um, that there was attacks on it but like really from the other videos I know that like they, he didn't even know for sure if the attacks had been made do it wasn't just something that was like wrong with their sonar or something so I doesn't seem like he is actually telling the truth really. He kinda just seems like he's just relaying like information, kinda like he's just saying what somebody else has already told him. Like it doesn't seem like he really
knows much about it which makes me think like he actually doesn't
know much about it and that he's just kinda saying it because that's
what somebody had like told him.

For the first three sources, Michele corroborated against each of the texts she had read. After the *Midnight Address*, she followed up her corroboration with historical analysis by recognizing that Johnson was dependent on information that was provided to him by other historical actors, like the Secretary of Defense. Later, when asked if her opinion changed she responded by referring implicitly back to the three video sources she had watched.

Michele: um, no it hasn't really changed at all, I just think that maybe Johnson
didn't act on his own ideas but that doesn't make it justifiable at all
either. So I think it wasn't justified.

This represented a sophisticated historical analysis that acknowledges the complexity of the event based on the reports from several sources. Michele and one other student made this level of analysis during the task.

The last source that Michele read was the political cartoon, *Vietscar*. Michele corroborated her evaluation about the meaning of the scar with the responses to the *Senate Voting Record* from the two dissenting Senators. She followed up with a more global analysis of the Gulf of Tonkin Incident by stating the long term impact of Johnson’s decision.

Michele: It's kinda like well if you're like the scar kinda is like a negative
connotation like oh it’s kinda like going back to what the other guys
were saying [Gruening and Morse] that this is going to be shown for
like generations to generations and stuff like that and that the future
generation might not think it’s correct and like that's kinda like a
blemish in American History that maybe this shouldn't have happened and that this is what Johnson's going to be known for is that he's going to be known for the war going to Vietnam and that that's going to be like a big part of history and like a big mistake in history.

Michele consistently corroborated across the sources presented in the task and used her corroborations to ultimately create her interpretation of the event that Johnson was not justified even though he did not act alone. His decision led to his downfall and the mistake that was the US escalation of the Vietnam War.

Michele demonstrated a sophisticated reading of the sources in the task and her reading proficiency was exemplified in her use of historical thinking heuristics and historical analysis. She also made more comments that were intratextual. Again, she demonstrated a higher degree of reading proficiency by analyzing the sources beyond the last section she read and referring back to other parts of the text. She made 38 of 166 references at the intratextual level. She made eight intertextual references through her corroborations and four comments at the global level that addressed the text set as a whole. Michele read across these multimodal texts as one might expect a proficient reader to do but she also engaged in fairly complex historical thinking despite the lack of scaffolds or instructions to do so.

**Text Influence**

The multimodal nature of the sources also impacted how Michele read across all of the texts in order to address the inquiry question for the task. Her comments about the usefulness and trustworthiness of the sources immediately after reading a source revealed how the source mediated her thinking. After viewing the *Fog of War*, Michele commented on the trustworthiness of the source.
Michele: Probably like a 4. Because I really think that it’s pretty trustworthy because like, it even won like an Academy Award and I mean like its documentary and it had real people from, who were there like witnesses, and it also had like the video reel that was in the what do you call it, where they were talking, like the radio or whatever.

She evaluated the trustworthiness of the video based on the reliability of the source because it was an Academy Award winning documentary, but she also cites the presence of the video tapes from the deck of the Maddox and the audio recordings between the General and the Secretary of Defense.

After Michele viewed the Midnight Address she, commented on the lack of trustworthiness of Johnson himself because of the way he sounded.

Michele: Ok I'll pick one. um, Probably like a 3 because like when I was watching it, it kinda seems like Johnson was really nervous sounding and didn’t really seem like he was convicted in what he was saying it kinda just seemed like he was just saying it to appease the American and tell them why we had to go to war but it didn't really seem like he believed in the reasons why we had to go to war which makes me think that like maybe he just wanted to go to war for a different reason.

The presence of the audio afforded Michele the opportunity to judge the veracity of Johnson’s appeal to the American people based on her analysis of the way he presented himself on television. The audio/visual feature assisted Michele in her analysis in a way that she might not be able to do with a transcribed printed version of the same speech.

When she judged the usefulness of the phone call between Johnson and National Security
Advisor McGeorge Bundy, Michele discussed the difference between a private phone call and a television appearance.

Michele: I think it was like a 5 because it um really showed how Johnson really thought like it wasn't him putting on an act or TV for the American people. It was kinda him like stripped down and it really showed how he felt. So it kinda helped me realize that he didn't even think he was justified in making the decision basically so I don't really think that he was justified at all.

Her analysis of the usefulness of the source is predicated on the difference between a phone call and a video. She used that evaluation of the two sources to make a decision on Johnson’s justification to ask Congress for the Gulf of Tonkin Resolution.

Sources

Michele rated sources in a similar manner to the whole class participants and the experts. At the end of the task she rated the sources she felt were the most useful to answer the inquiry question.

Michele: …the introduction video like really gave like a complete overview of what was going on and kinda really like um, it showed all the facts. It didn't really hide anything. It didn't really say oh the United States definitely was attacked you know like it was a big deal. It kinda just showed how there might have been a mistake or there might have and it left it open for you to decide your own opinion.

Michele valued the text that allowed her to develop her own decision about Johnson’s justification and then discussed why the two phone calls were also most useful.
Michele: And I think the phone calls um, the first phone call I liked. Well I liked them both pretty much because I think they were really helpful because they showed Johnson's like point of view especially the phone call with McGeorge Bundy or whatever. He like that phone call was kinda like Johnson unfiltered. It was really what his thoughts were on his opinion or on his decision kinda. That really helped me make my decision. Because if he couldn't believe what he did was right then neither could I. And also the phone call to Secretary of Defense um, that one really helped me cause it kinda showed that like Johnson didn't really even know what he was getting himself into or he didn't even know what was going on really and like it was kinda like he didn't know what he was getting himself or the United States into.

Michele discussed how these two sources helped her make her decision. She echoed her earlier sentiments about the value of the unfiltered nature of the phone call to Bundy and how the phone call to McNamara showed the Johnson was not acting alone but still unjustified. She chose the phone call with Bundy and the most useful source and the Senate Voting Record as the most trustworthy.

**Interest**

Michele possessed a fair amount of domain knowledge based on her history grades but lacked prior knowledge on the topic of the Vietnam War. Her prior knowledge measure indicated a low degree of knowledge about the Vietnam War. She wrote only 3 pieces of information that she knew about the Vietnam War. She indicated a preference for video and audio.
Michele: I think the videos and then like audios are close too because like in this one that we did I really liked hearing like the audio because it was like exactly what Johnson was saying and like the videos were really cool cause like it kinda showed two different points of view. Like it showed how um, America could take the incident as like a big deal and how like maybe it wasn't such a big deal. I think it was really useful too because it showed like I wasn't there when it happened so it’s like it’s easier to understand the events took place if I am watching it.

She indicated a mixed preference for images.

Michele: Um, political cartoons like I like them but then again like I, the only reason I don't like them as much is because they kind of like I don't know, the message seems like usually it’s like not hidden but it’s not always completely obvious to you. So you kinda like second guess, or well I kinda second guess myself, and like is that really what he's trying to tell me. So that's kinda like they only reason I don't like them very much.

Although she indicated a lack of confidence when reading a political cartoon, she noted a distinction between charts or photographs.

Michele: I think the images were easier to understand because its kinda its still kinda seems like it's right there and its like this is what happened. This is who voted, this is who didn't or like against it or to it and this is like the path that the bullet made but like the political cartoon you still have
to like kinda interpret it your own way as to figuring out what the like
cartoonist really wanted to say.

She referred to the differences between the Senate Voting Record, a photograph she viewed for
another task, and Vietscar. She made here distinction based on the level of interpretation the
image required for comprehension.

Michele indicated her interest in the topic based on the controversial nature of the event.
Her interest appeared to be influenced by the nature of the event and how it has been reevaluated
in historical terms.

Michele: Um, I think probably like a 5. I was really interested in it because like
it kinda seemed like, I just thought it was like really interesting how
um, how maybe one of our Presidents might have made mistake and
how like how not many people really thought that when he was making
the decision but afterwards alot of people were like yeah this was a big
mistake and they kinda interested me in how like people didn't really
get through and how maybe it wasn't like everyone, the whole situation
wasn't what we had really thought it, like the American people had
really thought about it so I thought was pretty interesting.

Finally, Michele indicated that her interest in the task was a 4 out of 5. She based her
interest on the ability to interact with multimodal sources instead of written documents and the
opportunity to create her own historical interpretation.

Michele: I think it was really, I thought it was really interesting and it was
actually kinda fun because like it was something different. We don't
really get to do like this kind of stuff in classes. Like it was interesting
like and kinda more fun like that we got to listen to like the phone conversations or like everything else that we got to listen to and we got to see the videos and stuff and then we got to make our decision. Because usually it’s more like we do written documents and then have to write about that.

Michele was a high achieving student, a highly proficient reader, and was able to create a sophisticated interpretation of Johnson’s justification based on her reading of the multimodal sources presented in the task. She represented the most sophisticated of the reading behaviors demonstrated in the task. The next case analyzes how a less proficient reader and a lower performing student worked through the think-aloud task, mirroring several behaviors Michele exhibited.

**Jovany**

Jovany was a conscientious student earning B’s and C’s in the College Prep track and scored an 18 on the ACT Reading test and a 19 which is below the national average of 21.1. Jovany indicated a strong interest in history, particularly World War II. He was also comfortable using the Internet and computers. He stated, “I would actually hit the Internet first before reading my textbook.” He was a student who was similar to his College Prep peers in terms of his ACT score but would not be considered a high achieving student as compared to the rest of his peers in his junior class. His academic ability and reading proficiency stand in fairly stark contrast with Michele.

Like all of the students, Jovany started the task by reading the introduction anchor text. In his reading of the introduction text, Jovany asked 5 questions for clarification. Following the introduction text, he viewed the introduction video from CBS News. Jovany asked 3 additional
clarifying questions and then formed an initial opinion that no, President Johnson was not justified in asking Congress for a declaration of war.

Jovany: I, I don't think Johnson was justified because just, just like I said the fact saying that when you ask to go to war its usually cause I mean an event of some sort happens. You could call this the event but it looked more like they said it was an attack or Gulf of Tonkin Incident. It's supposedly an attack on the Maddox ship but like I said it kinda looks shady how one ship took out three ships and one ship didn't get no damage at all. I mean. So, I don't know. I don't think he had any justification behind that.

From this point Jovany could choose whatever path he wanted for the remaining six sources. He decided to start with images.

**Historical Thinking**

Like Michele and the other students in the think-aloud condition, Jovany predominately used general sense making strategies when reading across the multimodal sources. Slightly higher than the group statistics, 65.6% of his think-aloud comments were at the sense making level. Like Michele though, most of his sense making comments were evaluation (28.6%), elaboration (10.5%), or questioning the veracity of the event (12.4%), and making an inference (1.9%). Fifty-three percent of his think-aloud comments were made at the sense making level indicating more complex reading behavior at least half of the time. Interestingly, Jovany fixed up his comprehension by rewinding to review a source on nine separate occasions. While reading multimodal sources he was metacognitive about his understandings. Jovany also only made two value-based statements.
Jovany utilized all 3 historical thinking heuristics. He made 14 corroborations, 10 contextualizations, and 19 sourcing comments. He only made 6 historical analysis comments that would follow the use of a heuristic. His amount of heuristic use outpaced Michele but she was more efficient in developing historical analysis when using the historical thinking heuristics.

The first source Jovany chose was an image of the Senate Voting Record. He first contextualized the document and noted that the votes occur a few days after the attack. He read the source information and stated, “1964. So this was August 7th. Couple days after right?” He recognized that the Congressional vote came a few days after the reported attacked he read about and viewed in the introduction. After reading the image, he changed his mind and stated that Johnson was in fact justified due to the overwhelming number of yes votes for a resolution for war by Congress.

Jovany: it’s very apparent that he in fact was justified, but that’s that’s, 88 to 2. Obviously 88 did agree with him and wanted to keep going in the war, escalation as they said. And two opposed the war, they just want to take the troops out.

He utilized the historical thinking heuristic of contextualization but didn’t follow up with historical analysis. Following the Senate voting image, Jovany decided to view the second image, Vietscar.

Jovany’s analysis of the cartoon Vietscar, caused him to change his mind. The following portion of transcript from the interview highlights his ambivalence towards Johnson’s justification.

Jovany: It helps me decide that like maybe he regretted what he did. Cause most people that have scars were either hurt because they weren't doing
something I mean you could have gotten a scar from anything but I
usually associate a scar with regret. I don't know why I just do. So to
me that says like he regrets having that scar. Having doing what he did.
Let's see.

After reading the cartoon, Jovany then evaluated the trustworthiness of the source by once again
making a contextualization.

    Jovany: I'm thinking, I'm probably thinking like a 3. I can't really lean
toward one way or another cause it’s an opinion of him of course and
like. Let' see, David Levine. New York. This is in ‘66 two years after
the Tonkin Incident. Ok. Yeah I'm not really sure what to think about
that.

He recognized that the source is two years after the Gulf of Tonkin Incident but expressed his
uncertainty for why it may or may not be trustworthy. When asked about his opinion after
reading, *Vietscar*, Jovany indicated that his opinion had changed.

    Jovany: Yeah. Cause back and forth yes, no he's justified, yes he was. Now I'm
thinking no again because once again I associate a scar with regret.

    And maybe he's thinking man, I shouldn't have done that.

The above transcript highlights Jovany’s ability to contextualize and interpret the cartoon. He
noted the year in which it was published and was able to derive some meaning from the cartoon.
6 out the 8 students were unable to even interpret the cartoon. After reading the introduction and
viewing the two images, Jovany has utilized historical thinking heuristics but had not engaged in
historical analysis outside from evaluating the content of the *Senate Voting Record*.

Jovany proceeded to videos and watched the clip from the *Fog of War* and Lyndon
Johnson’s *Midnight Address*. Watching the *Fog of War* caused Jovany to solidify his change of mind that Johnson was not justified which reflected historical analysis. He first stopped and commented by questioning the veracity of the claims made in the *Fog of War*.

Jovany: How, how can you point them out? I mean he says clearly they are North Vietnamese shells. Does it like have their flag on there or something? I mean. It could have been any other enemy shells. I mean.

After he questioned the claim, he updated his opinion by stating that he was still unsure.

Jovany: I'm bouncing back and forth again. He shouldn't have done that. He had no right to cause if it never happened, that's practically. Well we're already in war but it’s practically just saying, asking permission to bomb them. That's practically what it is. Cause if it never happened, that that’s what it was. Asking permission to bomb North Vietnam.

Jovany viewed the *Midnight Address* next and began to employ the use of corroboration to analyze the claims made by Johnson in his television address.

Jovany: So he's saying um, this kinda goes back to the thing that, it’s like its one or two ships versus three ships and their unharmed. It says they were attacked but there, they never said anything about you know, seeing the 9 torpedoes or anything like that. No false alarm. It’s just yeah we got attacked.

He used the introduction video and the *Fog of War* to make the assertion that Johnson did not tell the whole story to the American public. By the time he read the fourth source, he began to exhibit more sophisticated reading behavior like that of Michele.
He finished by listening to the two audio recordings. The audio recordings prompted Jovany to make 4 corrobortations, one with *Vietscar*, one with his own prior knowledge, and two with the *Fog of War* video. This following except while he listed to the phone call with McGeorge Bundy highlighted Jovany’s use of multiple heuristics to create his own historical analysis.

Jovany: Um, the introduction is saying that um, this conversation was I believe before the Gulf of Tonkin Incident. Ok. (rewinds tape) At the time, the war in Vietnam was only a small dark cloud on the very distant horizon. Here is an excerpt from that conversation.

Ok that brings me back to the one diagram of the cartoon, where he has a scar on his belly and that kinda tells me like um, he did, he doesn't know what he's doing. He did regret what happened. That's what that scar was.

Jovany contextualized the phone call by stating that he believed it took place before the Gulf of Tonkin Incident. After fixing up his comprehension by rewinding to listen again, Jovany made a corroboration back to *Vietscar*, and asserted that the Tonkin Gulf Resolution was a mistake that Johnson would later regret. These comments reflect Jovany’s ability to create global, historical reasoning about the topic.

Jovany increased the complexity of his reading as he moved through the task. By the last phone call with McNamara, Jovany made another corroboration and historical analysis that claimed that the response of Johnson was not justified.
Jovany: It says they were attacked but there, they never said anything about you know, seeing the 9 torpedoes or anything like that. No false alarm. It’s just yeah we got attacked.

After he corroborated the phone with the *Fog of War*, Jovany made the comment that the response made by Johnson and McNamara did not match the attack that happened.

Jovany: He just, he's talking about other targets to attack that had nothing to do with like the actual Gulf of Tonkin Incident. I think I said this before but it’s like he's saying ok they attacked us in the sea so we are just gonna like destroy them on land. I, I guess it would make sense just cause it’s the enemy but to go from like they attacked us on sea so we gotta attack em from land.

Finally, Jovany made the analysis that perhaps the attack on Vietnam had been planned prior to the Gulf of Tonkin Incident.

Jovany: He says there are other targets at that time, um, it’s almost as if he, he kinda had a planned already like if this was to happen then this where we're gonna go for. It's kinda, seems kinda planned.

Like Michele, by the end of the task, Jovany had constructed a complex analysis of the Tonkin Gulf Incident and utilized historical thinking heuristics to make sense of the event. While Michele was more consistent in her exhibition of complex reading behavior, Jovany exhibited progressively complex reading behaviors and continually updated his documents and situations model to create an intertext model of the document set by the time he finished the task.
Text Influence

The multimodal nature of the sources also impacted how Jovany made sense of the task. His usefulness and trustworthiness ratings revealed how the modality impacted his rating of the source.

Jovany:  I thought, I thought it was very trustworthy. As informational I thought it was trustworthy cause once again its hardcore information. It’s the actual, it’s one of the actual people saying coming out saying that yes this is our conversation nobody knows about it. Here's a video about it and some audio.

Jovany addressed the importance of the content in the *Fog of War*, above, but also indicated that the presence of video and audio also contributed to the credibility of the source. Later, Jovany compared the trustworthiness of a video as compared with an audio recording and judged the presence of video and audio to be more trustworthy that just audio.

Jovany:  Trustworthiness. I would probably have to give this one a 2. It's kinda iffy. Um, it’s just voices. In the other one there was an actual video of it but for this it’s just voices.

At the end of the task Jovany also cited modality as a reason for his final usefulness ratings. He chose the introduction text and the *Midnight Address* among the most useful sources for him to answer the inquiry question. Jovany also exhibited a preference for primary source features of the texts. Like in the whole class analysis, it make be that the modality makes the primary source features more accessible.
Jovany: I don't know because it's just information. I mean like the text, that's information. The video, it's a video. I don't know. I trust videos I mean.

Although Jovany stated that he trusted videos, he did not mark the *Fog of War* as one of the most useful sources because that video did not help him to reach his final decision.

Jovany: I didn't check that one cause I well to help answer the question, it didn't really help me answer. I was kinda in the middle for that one after watching that video.

Jovany based his use of sources to develop his answer to the inquiry question based on the mode of the source but also how the source influenced his thinking.

Jovany: Cause, the video, most of the videos were actual document, documentations of the real people talking and I just thought that you know like it's that person talking.

The authenticity of the sources as presented in video form were judged to be credible by Jovany.

**Sources**

After reading each of the six sources Jovany answered a series of structured questions about importance and trustworthiness of the documents. The sources he rated the highest in terms of usefulness was the *Fog of War* video and the audio of the Phone call between Johnson and National Security Advisor McGeorge Bundy. Interestingly, he rated the *Vietscar* cartoon initially high but at the end of the tasked rated the cartoon least useful. His final usefulness ratings included the *Midnight Address* and the two phone calls. He rated the *Midnight Address* as the most useful source and the phone call with McGeorge Bundy as the most trustworthy.

The changes in his initial ratings to his final ratings demonstrate again the constant
updating of his intertext models to come to a more integrated documents model. The *Midnight Address* was most useful to him because he came to the decision that Johnson was not justified after he corroborated Johnson’s television address with the *Fog of War* and the introduction video. He finalized his decision that Johnson was not justified after listening to the phone call with McGeorge Bundy and made his historical analysis statements after listening to the phone call with McNamara. The texts that he rated as most useful are the same texts that most influenced his reasoning about Johnson’s justification.

**Interest**

Jovany was not as interested in the Vietnam War as a topic in American History. At the end of the task he stated that he did not have much interest in the Gulf of Tonkin incident but preferred World War II.

Jovany: Uh it’s, it’s not really my thing to like understand what happened during, I, I really wasn't interested in it cause it’s, it’s one of those...It wasn't really popular, I mean it just happened. It was an event.

Michael: OK. So what's a topic that really interested you this year in history?

Jovany: This year in history, um, let's see, World War II.

Despite Jovany’s lack of interest in the topic, he had a high interest in task and stated, “I love, I love using computers.” He indicated that often used the Internet for school tasks. When He was asked to compare this task with reading the same sources in printed text form he responded by stating that he may have given up on the task if it was text only.
Jovany: I, I don't want to say I would have given up on it but, it’s I, I probably, I'd be interested in it to a certain point. After reading so much text, it’s just, it’s just text. It’s not exciting, it’s boring. No emotion, there’s no feeling.

Jovany also indicated, “I think it is easier using Internet resources to write an essay.” As a less proficient reader, Jovany appeared to favor multimodal sources because they give texture to the topic being studied. Despite his lack of interest in the topic and his more limited reading skills as measured by the ACT, Jovany mirrored several of the same historical thinking practices that Michele exhibited.

Michele and Jovany are contrasts in reading ability, school performance, and interest in the topic yet both demonstrated high interest in utilizing multimodal sources to investigate history. They indicated that the use of embedded video is preferable to teacher-controlled video and enjoyed using the Internet to investigate a historical topic. From a motivational standpoint, choice is an important factor for these students (Paris & Turner, 1996). They both indicated that this same task in printed format would be less compelling and Jovany even mentioned that he would probably stop reading. Both students exhibited similar reading behaviors and comparable levels of complex historical reasoning without an intervention.

The purpose of this chapter was to highlight two examples of how students read across multiple multimodal texts, how multimodal texts mediated student’s historical understandings, what sources students would be most likely to integrate into their response to the inquiry question, and how interest and knowledge contributed to student reasoning.

The other purpose of this chapter was to exemplify the potential for the use of multimodal sources in historical inquiry to ameliorate differences in reading ability when reasoning across
multiple sources. Michele and Jovany read in similar manners despite a large difference in the reading abilities. These two cases highlight some of the potentials for instruction using multiple multimodal sources. More detailed conclusions and limitations are discussed in the next chapter.
CHAPTER 6

DISCUSSION AND IMPLICATIONS

The premise of this study was that in order to truly engage in disciplinary literacy practices, a more expansive range of texts that are salient to construct knowledge needed to be studied. Previous research has focused more on reading traditional printed texts, but several types of multimodal texts dominate the experiences of students both in and out of school. Hence, this study sought to determine how students read across multiple multimodal texts in a specific discipline like history. Important to understanding how students read across multiple texts types were the ways in which multimodal texts impacted students’ understandings, how students used multimodal texts to respond to a historical question, and what role prior knowledge, interest, and reading ability played in students’ meaning making across multiple multimodal texts in the discipline of history. As a result, qualitative and quantitative methods were used to investigate the research questions that emerged from these premises.

The previous two chapters provided an overall analysis of 8 students who participated in think-aloud protocols and 43 students engaged in a whole class task as well as an in-depth case study analysis of 2 students who participated in the think-aloud protocols. This chapter is organized to provide a discussion of the analysis of my four research questions, explain the implications of the findings for classroom practice, and outline directions for future research.

Reading Across Multiple Multimodal Texts

The nature of the data collection and analysis for my first research question was descriptive in regards to how students read across multiple multimodal sources. The think-aloud data from the eight students that ranged in reading ability as measured by the ACT confirmed previous research on how students read across multiple traditional texts but it also provided
insights into how students read across multimodal sources. Based on the analysis of the 8 think-aloud interviews, I argue that all of the students exhibited complex reading behaviors using multimodal historical sources, some created complex mental representations about the historical topic, and made critical evaluations of the sources based on content, source, and modal attributes, indicating reading behaviors that mirror how historians approach multiple historical sources. Despite demonstrating complex reading behaviors, students did not consistently engage in discipline-specific reading throughout the task. While this finding may be expected, it demonstrates the need for scaffolds in history instruction even when using multimodal texts.

For the most part, students did not spontaneously engage in the use of historical thinking heuristics, much like high school students in other studies (Stahl, et al., 1996; Wineburg, 1991). These students did not receive explicit instruction in how to source, contextualize, or corroborate historical sources; yet, when prompted, they were able to source a document. When unprompted, they used historical thinking heuristics 20% of the time. It is insightful to look at the ways that students utilized historical thinking heuristics. For example, students noted that multiple perspectives on the Gulf of Tonkin Incident helped them determine if Johnson was justified in asking Congress for a resolution for war. It is evident that students viewed historical sources as contested and the ability to create an argument as central to historical inquiry. The response from Annaliz, a less proficient reader as measured by the ACT, highlighted this view.

Annaliz: Because if you just have one video it’s just one person's opinion but if you have other videos its gonna be different opinions what like just different stuff. So instead of just being oh you know, that guy's true he so true but here it's like oh yeah he's so true but then you get more information and then you just like hold on, hold on is it really like that? And then you just start thinking
and you change your perspective on the stuff other than just like a video, you are going to keep it up.

Annaliz asserted that the sole use of a single video is not enough to create historical understanding. While she indicated a preference for videos in her interview, she demonstrated in this excerpt that it is important to have multiple perspectives to develop a richer historical interpretation.

The demonstration of complex reading across multiple texts indicates that high school students can engage in a complex task that includes multiple sources. It also demonstrates that students want to engage with multiple sources. The presentation of multimodal sources provided an element of motivation for the students as they indicated a high preference for the task. It appears that teachers would be able to engage students in an inquiry task by including the use of audio, video, and images instead of only printed texts. The addition of multimodal texts will not automatically lead students to engage in historical thinking without instruction, however.

While previous research has studied student use of historical thinking heuristics like sourcing, contextualization, and corroboration (Nokes, Dole, and Hacker, 2007; VanSledright, 2002a; Wineburg, 1991, 1998), this study investigated how students specifically used each of the heuristics. Think-aloud comments were analyzed for the use of sourcing, contextualization, and corroboration. All of the think-aloud students exhibited evidence of sourcing the documents, placing events in context, and corroborating claims made in the sources against other sources in the text set. The ways in which students actually sourced, contextualized, and corroborated were exhibited in different ways. For example, when contextualizing, most students placed events in sequence but did not necessarily evaluate the context of the source. All of the students utilized some heuristics in their thinking, some more than others. It is important to see the ways students
engaged in sourcing, contextualization, or corroboration because these can inform classroom teachers about the ways they might approach instruction in using historical thinking heuristics. For example, classroom teachers can begin to develop disciplinary literacy strategies to address contextualization, corroboration, and sourcing. An example might be to use a history events chart (Shanahan & Shanahan, 2008) to scaffold the evaluation of the context of a source by building on students’ ability to sequence events. A history event chart is designed to make connections between events. It can be used to also evaluate those connections that are not always explicit in primary and secondary sources. This type of scaffold can facilitate more sophisticated use of historical reasoning skills, leading to deeper historical analysis.

As expected, a bulk of student reading occurred at the sense making level, however the analysis revealed that students engaged in complex reading behaviors like making inferences, evaluations, and elaborations more so than quoting, paraphrasing and summarizing. Sixty-five percent of the sense-making events recorded from the think-aloud data were representative of complex reading behavior. Students demonstrated the ability to make sense of complex texts and exhibit complex reading processes while doing so. Chi, et al., (1994) and Wolfe and Goldman (2005) argue that self-explanations, like the behaviors described in Chapter 4, promote increased comprehension. Students’ ability to make evaluative and elaborative explanations indicated they were building an integrated documents model (Perfetti, et al., 1999). Their intertextual connections between texts are evidence for use of an intertext model, which is necessary to build a more integrated documents model (Perfetti, et al., 1999). The case study of Jovany in Chapter 5 exemplifies the way he came to a complex mental representation of the Tonkin Gulf Incident as he continued to read across all of the texts. Jovany’s construction of a complex interpretation over the course of the task also indicates that single sources may not elicit
complex reading behaviors in the same way that multiple sources do. Typical classroom instruction around a single text would not have elicited Jovany’s ability to develop a rich historical interpretation about the Gulf of Tonkin incident.

Several students demonstrated that they were able to build an increasingly complex mental representation of the Gulf of Tonkin Incident as the read across the documents provided. Students updated their documents models by forming updated situations and intertext models throughout the task. Evidence of changing opinion throughout the task and evaluating the veracity of the content as well as the source of the content reflect these complex mental representations from students who possessed low background knowledge on the topic. One of the students provided some insight into the role that multimodal nature of video played in helping him make sense of a historical question.

Brad: Probably the videos and the images, because like the videos they usually, like they have, there is more stuff involved with them. There's more interviews and stuff like that. It gives you something to associate with what's going on, cause alot of times they'll show like exactly what happened, they'll have some of these voice overs and stuff like that, and then the images.

Most of the students in the think-aloud condition commented in the follow-up interview that video and audio were preferred formats for helping them to make sense of the inquiry task. During the think-aloud interviews, the students also evaluated the sources not only on the basis of content but also on the source attributes, like author reliability and credibility, and the attributes of the modality.

When students pay attention to source, comprehension measures are found to have increased (Rouet, et al., 1996) and when students evaluate sources on more than just the content
of the source, comprehension has been found to increase as well (Braten, Stromso, & Britt, 2009). The students in this study demonstrated that they evaluated usefulness often on the basis of content and trustworthiness on the basis of the source attributes. Additionally, modality played a role in informing students’ evaluation of trust. An example included the questioning of Johnson in his *Midnight Address* because of the way he sounded. It was evident that students not only evaluated sources when prompted but also on their own. Additionally, they used contextualization and corroboration to verify their perceptions of usefulness and trustworthiness. This tendency to engage in evaluation suggests that the presence of multimodal sources influenced complex sourcing that led to complex reading of the sources. Every student, from the lowest performing reader to the highest, exhibited complex reading behavior and unsolicited historical thinking heuristic usage. The ways that students developed their historical understanding through the use of multimodal sources provide insight into how students read across these discipline specific and complex sources around a controversial historical topic.

An observation that has implications for classroom practice was that students were able to judge sources for their usefulness and trustworthiness. Teachers might consider asking students to judge the usefulness and trustworthiness of historical sources and explain their reasoning instead of only having students explain the literal and inferential meanings of the documents. In judging usefulness and trustworthiness, students need to consider the other texts they have previously read. This practice may provide a good scaffold for corroboration of sources.

The adolescents in this study were able to process and reason across multiple multimodal sources that were both primary and secondary in nature. These are the types of texts a historian would analyze to investigate the Gulf of Tonkin incident. The majority of the sources were
primary sources and all of the sources contained elements of a primary source. Students in the think-aloud condition and whole class task consistently commented on the primary source elements within a secondary source as being useful and trustworthy. Students pointed to the authenticity of the primary sources like the phone calls or the footage from the deck of the USS Maddox as helping them to form their opinion. It is clear that primary sources impacted their understandings but it also seemed that the presentation of primary sources in a multimodal format contributed students’ understanding and creation of complex mental representations.

Like Bain’s (2006) study demonstrated, students can comprehend complex primary sources in historical inquiry. Teachers should not eschew primary source documents because they are too difficult. Additionally, students were able to develop a complex understanding of the event without being directly taught the event first. They were able to read multiple multimodal primary sources to create a historical interpretation. It is also evident however, that students need additional supports when reading primary sources like a political cartoon. The complexity of the cartoon, Vietscar, in this study impacted the students’ ability to utilize the cartoon to come to a decision about Johnson’s role in the Gulf of Tonkin resolution. While multimodal features may aid student comprehension of primary sources, it does not ensure comprehension. Teacher scaffolding is necessary.

**Source Influence**

Both the think-aloud data and the whole class task data provided rich descriptive evidence for how students used modality and source types to understand of the Tonkin Gulf Incident. In this study, I wanted to see how the modality of the source was used by students to understand the Gulf of Tonkin incident but realized that the source type (primary or secondary source) also were used to facilitate students’ understandings. The sources that were a
combination of secondary and primary sources highlighted the interrelationship of source type and modality.

The majority of think-aloud statements and comments about usefulness and trustworthiness for the *Fog of War* or the phone call with McGeorge Bundy pointed to the primary source information as impacting an overall understanding. For example, students indicated that showing the tapes from the decks of the *USS Maddox* was helpful to make sense of the attack. The section of video that these students referred to was primary source footage and not the interview with former Secretary of Defense Robert McNamara. The same can be said about the phone call with McGeorge Bundy. The introduction to the phone call was rarely referenced but the ability to, “hear the two men talk” served to influence their understanding of Johnson’s position on Vietnam three months before the Tonkin Gulf incident. The primary source in multimodal form appeared to influence student understanding but it is less clear if a secondary or tertiary source in multimodal format would elicit the same types of evaluations or ratings. Each modality and their features will be discussed in terms of how the modality impacted student understandings of the Tonkin Gulf incident.

**Video.**

Student use of multimodal texts was analyzed by analyzing each modality (video, audio, image). When asked to describe what sources they preferred, students preferred videos, but their usefulness and trustworthiness ratings did not demonstrate a parallel preference for this task. In terms of modality, students pointed to the ability to see what was happening as a reason for increasing their comprehension of the source. Other times the presence of features like the audio transcripts embedded in the video provided a reason to trust the content of the video. It appeared that the features of video influenced the students’ evaluation of the video as a credible historical
source. The *Fog of War* video was a secondary source with primary source footage embedded in
the source. Students evaluated the source as credible because of the content and the features
provided actual transcripts and footage from the deck of the *USS Maddox*. The *Midnight Address*
on the other hand was solely a primary source. Students evaluated this video more on the basis
of their inability to trust Johnson based on how he sounded or the information he left out of the
speech that they read about in another source.

The features of a video are not universal and should not be treated as such. As discussed
earlier, the type of source and the presence of other sources also impacted how the video
influenced student thinking around the Tonkin Gulf Incident. Student evaluation of the sources
as primary documents predominated the ways they evaluated the videos.

The ways that students used the videos in the task highlight some important
considerations for classroom practice. Primary source videos provide important context for the
reader. For example, the *Fog of War* provided a visual context for the events in the Gulf of
Tonkin. The *Midnight Address* allowed the reader to judge the trustworthiness of President
Johnson. Teachers can introduce historical speeches or excerpts of them in their video format.
Students also demonstrated the ability to corroborate across the videos. One important skill the
students did not exhibit was critique the authorship of the video. No students questioned why the
*Fog of War* was produced in 2003 and why McNamara would only admit to the incident not
occurring forty years later. Teachers should consider that rich discussions about the production
of the source may be just as important as the content of the source. The students in this study
were able to extract important content from the videos but did not critically evaluate their source.
If teachers are pursuing a disciplinary approach to inquiry, both skills are necessary, and
additional supports are needed for students.
Image.

The Senate Voting Record and the political cartoon, Vietscar represented two distinct types of images. As a result, the two images impacted student understandings in different ways. The Senate Voting Record was a photograph of the Senate tally sheet of vote on the Tonkin Gulf resolution. Students mentioned its usefulness because it “showed” the opinions of the Senate and that it was trustworthy because it was an “actual artifact”. It also contained additional primary source information and elicited fewer comprehension problems than the political cartoon.

Vietscar drew skepticism because it was not seen as trustworthy because it represented one person’s opinion. Some students also viewed the political cartoon as untrustworthy because the cartoon presented comprehension problems. Even the most proficient readers like Michele and Richard eschewed the cartoon, not because of the content or source, but because they could not understand it.

Students explicitly expressed their dislike for political cartoons because they are hard to interpret. Since many images like political cartoons or photographs do not contain additional text that provide context for the source, students may exhibit comprehension problems with these texts. Teachers might consider providing additional textual information to accompany visual sources like political cartoons or photographs. It is also important from a disciplinary perspective to discuss the production of images and how that production not only impacts the content but the purpose for analyzing a source like a political cartoon or image.

Audio.

Two recorded phone calls made up the corpus of audio files for this task. The phone call between Robert McNamara and President Johnson consisted of only audio. The phone call
received high usefulness and trustworthiness ratings because of the level of details in the phone call and that it was an “actual conversation” between two major stakeholders. Little evidence of the mode itself came to the forefront for the McNamara call influencing students’ understanding of the event. Bianca did remark that it can be hard to understand if it is only audio, but overall the source received high usefulness and trustworthiness ratings based on the content and the perceived authenticity of a recorded phone call that was a primary source.

The phone call with McGeorge Bundy contained audio and a picture of the two men talking along with a running transcript of the conversation. Students overwhelmingly based usefulness again on content and trustworthiness based on the source. The modality of the call was also commented on a reason to trust the call. One student from the think-aloud task commented, “I trust the information because of the television station it was broadcasted from (PBS) and the way the information was presented.” In this case again, the way that the content was presented influenced how the student came to trust the source. Ultimately, the phone call between McGeorge Bundy and President Johnson was the source that was most included in student essays and the source that students trusted the most.

The decision to use audio as a source needs to be purposeful. Like with video, the students exhibited complex interpretations of the content contained in the audio files, but rarely questioned why the phone call occurred or why someone would publish the particular phone call they listened to in the task. Scaffolds for judging the creation of these types of historical sources is critical to developing a fully literate student in the discipline of history.

All modes.

Multimodal texts influenced student understandings in different ways but they could be grouped together based on a common feature like video, audio, or image. The same can be said
for primary and secondary sources. While previous research has suggested the students are more likely to trust and use primary sources over secondary sources (Rouet, et al., 1996), the students in this study appeared to base their choices on the way that the mode presented the information. The *Fog of War* and the phone call with McGeorge Bundy contained primary and secondary sources and were the top among the top sources rated for usefulness and trustworthiness. Their major reasons for the high usefulness and trustworthiness ratings were based on the authenticity of the primary source features of both sources. The *Senate Voting Record*, a primary source, was highly rated for usefulness and trustworthiness but the *Midnight Address*, another primary source, was rated lower for usefulness. The way the modality presented the content embedded in the source seemed to influence the ways that students integrated the sources into the essay. Modalities should not be treated as universal but analyzed for the ways that the features can influence perceptions of usefulness and trustworthiness. Modality may matter but so do the content and the way the two constructs work together to provide information. The ways that students used the sources in their essays also illuminate the role of modality, content, and source attributes plays in making sense of a historical topic.

**Source Use**

The analysis of the essays revealed that students integrated the sources they deemed most useful and trustworthy into their essays, and included all three modalities. It is also evident that students, regardless of ability, did not write about the topic in a manner that garnered high historical reasoning or historical argument scores. Most students did refer to more than one source, and very few students solely relied on the introduction text to write their essay. From a multimodal perspective, students used the majority of available designs during the designing phase. When it came to writing the essay, the redesigned, students used texts that had more
modal affordances. For example, most of the sources included in the student essays contained multiple channels (Mayer, 2005). It is not clear if having multiple channels caused students to use those sources in their essays, because students also rated the *Midnight Address* high for usefulness and trustworthiness but didn’t incorporate it regularly in their essays. While the *Midnight Address*, had fewer modal affordances such as additional text, inset videos, etc., it is unclear if that is why it was left out.

It is important to note that while students read non-traditional multimodal sources in this task, they wrote traditional written essays. They were not able to use all of the available designs to communicate their historical interpretations. It would be interesting to see if students would use the same sources if they are asked to write a multimodal response to the inquiry question. Multimodal sources were read in complex ways, as demonstrated through the think-aloud data, but the essay data does not reveal the same complexity. Perhaps if students had the opportunity to construct a multimodal response, the complexity revealed in the think-aloud data would also be revealed.

**Learner Characteristics**

It is unclear how individual interest, situational interest, topic knowledge, and reading ability impacted student performance on the task, because measurement issues made the influence of these constructs, from the Model of Domain Learning (Alexander, 1997, 2003), inconclusive. Small sample size and an insensitive survey measure made it difficult to identify situational interest other than on the task as a whole. What was evident was the similarity in historical reasoning about usefulness and trustworthiness of the sources made by all of the students and the expert history teachers. Additionally, students with higher reading ability as measured by the ACT did no better than students with lower reading ability regarding the
historical reasoning scores they achieved on their essays. The use of multimodal sources may have helped the lack of prior knowledge and lower reading ability for less proficient readers as compared to their peers. Despite the lack of difference between the less proficient readers and more proficient readers for historical reasoning, there was a difference in the way that students wrote for historical argument. Using multimodal sources did not mitigate the inability to construct a complex written argument.

Coiro et al., (2008) argue that a lack of prior knowledge can be ameliorated quite quickly when students are online, because multimodal sources like video, audio, and images can be used to increase background knowledge more quickly than written text. These modalities also provide a visual cue to what the topic is about. Several students talked about the affordance of being able to see what the details of the event are. Bianca commented on the nature of working online versus reading her textbook.

Bianca: I think if it’s like that, then it would be more interesting than reading from like a book and stuff, I think just the type that has it, has videos and aside from only text, it gets you like a visual picture of how things could be, so it makes you more interested, because you want to know oh my god, you know that’s how it happened, oh, well why did it happen like that? It makes it easier I guess to comprehend.

The presence of multimodal sources served to increase her comprehension of the event. The lack of a statistical difference between lower proficiency readers and higher proficiency readers when reading ability is co-varied is important, because regardless of the curriculum and instruction methods, all students were able to reason across multiple multimodal sources with some degree of sophistication.
The scores on the essays demonstrated that neither group could necessarily articulate in writing their historical reasoning across multiple sources with a high degree of complexity. However, there was no instruction about using multiple texts, and yet, students were able to engage in historical reasoning. The case studies of Michele and Jovany demonstrated that less proficient readers were able to verbally demonstrate some complex historical reasoning. Jovany’s reading across multiple multimodal historical sources mirrored the reasoning exhibited by Michele who was a top student in her class and a top performer on the ACT.

Additionally the students’ ratings of sources for usefulness and trustworthiness mirrored the scores of the four expert history teachers. Students evaluated sources like the teacher experts. This congruence implies that students’ strategies for evaluating sources were successful.

A statistically significant difference was found in the argumentation scores of the two groups, but when reading ability as measured by the ACT was used as a co-variate, there was no difference. Students with higher achievement did write better arguments. It is important not to assume, however, that the mere addition of multimodal sources will help students write better arguments: the argumentation scores for all students in this sample were low.

It is important to note that while students from the two different classes exhibited a similar ability to historically reason in their essays, these scores were low. It may be that the students were unable to demonstrate their reasoning in writing. Even though argumentation scores were higher for the Honors students, their scores were low as well. It is clear that attention to discipline-specific writing is just as important as discipline-specific reading if students are to be able to communicate in the discipline.

Students struggled to communicate their interpretations in writing because they did not use the historical thinking skills that they exhibited when reading. Students demonstrated
evidence of sourcing, contextualization, and corroboration while reading but they did not exhibit these skills explicitly in their essays. Even though students critically sourced each document after reading, they did not discuss the veracity of the claims and evidence based on the sources of information in their essays. Students demonstrated the ability to contextualize events when reading but did not demonstrate this skill to construct a multifaceted argument. Historical argumentation scores were low because students made claims that were general and used evidence in a singular manner rather than integrating multiple pieces of evidence to generate their argument. Even though students used multiple sources as evidence in their essays, they listed rather than synthesized those sources as evidence for their claims. Like sourcing and contextualization, students corroborated sources when reading but did not construct claims that reflected the corroboration of competing sources. These struggles suggest that explicit instruction is necessary to connect historical thinking skills that are employed while reading multiple sources to facilitate the construction of historical analysis through argumentative writing. Historical thinking skills need to be taught for reading and writing in the discipline of history.

**Implications for Classroom Practice**

The implications for classroom practice extend that called for by previous research on reading multiple texts in history. Students can read across multiple multimodal texts and can engage in complex reasoning around those texts. If a teacher is to take a disciplinary literacy focus, then it is important to investigate central topical knowledge but also how that knowledge is constructed and disseminated. Typically, research on students reading multiple texts have been conducted with more proficient readers in high school or with college aged readers (Braten, Stromso, & Britt, 2009; Stahl, et al., 1996; Wiley & Voss, 1996; Wineburg, 1991). The students
in the think-aloud condition represented a range of reading ability from well below average to well above average, who also possessed limited prior knowledge on the topic and limited exposure to thinking like a historian. The students in this study demonstrated complex reading of the event across multiple sources. Teachers can teach historical thinking skills that are germane to the discipline through the use of multiple multimodal sources.

Because it appears that multimodal sources may help to bridge gaps in prior knowledge, teachers may consider adding multimodal sources into their texts sets to make disciplinary texts more accessible to less proficient readers. This does not suggest that teachers should eschew written text for video, audio, or image sources only. These multimodal texts can be leveraged because of high student interest, so that students will be more likely to engage in rigorous examination of historical phenomena and perhaps be used as scaffolds to more dense and complex written primary and secondary sources.

Similar to previous research on multiple texts in history (Rouet, et al., 1996), this study suggests that having students rate sources for usefulness and trustworthiness may invite more critical processing of the texts, required for deeper comprehension (Goldman, 2005). Teachers might think more about these using these constructs instead of focusing narrowly on content summarization as they work through multiple texts.

Teacher preparation in content area or disciplinary literacy needs to focus on how to select quality multimodal texts for students to read. Text selection is crucial for engaging students with multiple complex texts. In this study, students were unable to see Vietcsar as a possible reflection of public opinion in 1966. Perhaps some additional text may have helped students better comprehend the cartoon.
Finally, attention to writing for argumentation is necessary for developing disciplinary literacy. Teachers should consider using multimodal products to begin the process of teaching for argumentation since students exhibited a preference for these types of sources. The students in this study demonstrated some ability to construct historical arguments orally but not through writing.

As Internet usage grows in classroom settings, the promises and possibilities of accessing quality historical sources will be realized. An important caution needs to be stated, however. Simply giving kids multimodal texts will not lead them to be better readers or writers. That being said, the introduction of multimodal sources may help students build content knowledge and provide students with opportunities to learn and think about the past that do not require reading. This study did not identify all of the modal affordances (Jewitt, 2008) of multimodal texts, and more research is needed.

**Limitations**

There were several limitations of this study. The sample of students chosen represented the population of the school that the study was conducted but not a larger population of high school students. Additionally, the sample size for the whole class task was too small to have robust statistical power. In the future, it would be advisable to draw think-aloud students from a number of high school classrooms and at least 175 -200 students to participate in the whole class task so that multiple regression could be applied to the interest and knowledge measures to provide more robust statistical power to detect relationships and differences between knowledge and interest in the domain of history (Tabachnik & Fidell, 2007).

Another limitation in this study was the survey instrument designed to measure situational and individual interest. The survey had a high internal consistency as measured by
Cronbach’s alpha but the principle factor analysis revealed flaws in the ways that modality preferences were being measured. The items on the survey needed to mirror the types of texts that are a part of the task to establish a clear relationship between modality interest and modality usage for each particular modality like video, audio, and image. As a result, no clear indications for individual modality types can be discussed statistically. The study would also benefit from a measure of domain knowledge, not just topic knowledge.

The study itself was only a snapshot of a classroom over the course of three days. In the future, more observations of the classroom context are necessary to better inform the types of reading behaviors that students utilize. There is no way to know what types of reading behaviors students exhibited throughout the year and if any of those behaviors were mirrored in this task. Because of these limitations, the results of this study cannot be generalized to a larger population but can be generalized to similar populations. The study also provided important descriptions and evidence of the ways in which a particular group of students read across multiple multimodal texts for historical inquiry. These limitations provide fertile ground for future research on the use of multiple multimodal texts.

**Implications for Future Research**

The analysis of the think-aloud data revealed how students read across a variety of text types. This study made little use of traditional printed text outside of the introduction text. It is important to uncover what role text plays in comprehending multimodal sources. It is also important to attempt to find the salient features of different modalities for meaning construction. Because learning across multiple texts is context dependent as well, it is important to conduct similar studies in disciplines like science, mathematics, and English/Language Arts.
Another area of future research this study exposed was the need to understand how students might integrate relevant and non-relevant texts into an argumentative writing task. Because all of the sources were relevant to answer the question, it is harder to distinguish how modality may have played a role in source integration. What are some of the seductive features of multimodal texts that might cause a student to use it in their essay? The finding that the students made similar decisions on usefulness and trustworthiness as the experts leads to questions about why they were able to do so.

The finding that there were differences in the scores for historical argumentation between College Prep students and Honors students highlight the need to understand how to better help students write for argumentation within the disciplines. This study suggests a need to include multimodal sources in that research. For example, researchers should be determining the role of modality in the construction of arguments. This study also highlighted the need to develop scaffolds for historical reasoning and for argumentation, with the understanding that they are not the same construct. The role of the discipline is an important contextual factor for all of the described potential lines of research. The ways that teachers and students approach the discipline and the texts that instantiate the discipline are all critical areas of inquiry.

Conclusions

The results of this mixed methods study are significant for three reasons. First, the study demonstrates that a wide range of readers who were not in the top of their class could reason across multiple multimodal primary and secondary historical sources in a complex manner, engaging in complex and discipline specific inquiry. Multimodal texts appeared to facilitate the reading of multiple texts in history. Students still needed appropriate scaffolds for accessing the texts, however. For example, they were stymied in their attempts to understand the political
cartoon because of their lack of contextual knowledge. Students also neglected to consider all aspects of disciplinary literacy, including how sources are produced and disseminated when engaged in historical inquiry.

Second, the study is significant because of its applicability to urban public high school contexts. The study population also reflects the nature of many of these schools: A majority of the students came from a linguistically diverse background, and more than fifty percent of the students spoke a language other than English (primarily Spanish) at home. Thus, the study’s findings are useful for high schools exhibiting these characteristics. Traditionally underperforming students showed evidence of performing on par with their higher achieving peers. These findings suggest that multimodal text may help students with limited disciplinary vocabulary and background knowledge. Multimodal texts can be leveraged not just for motivational purposes but also to help remediate larger gaps in background knowledge that allows for more complex disciplinary reading. The study also suggests, however, that students still need quality instruction in writing however. The students in this study did not demonstrate the ability to write complex arguments, and the ability to communicate in writing is critical for their overall literacy development.

Finally, the study provided a needed empirical analysis of how students engage with multimodal texts in a discipline specific context. Much more research is needed in this area because it is clear that demands for multiple text comprehension in a digitized world are not going away. While the central focus of this study was on how students read multiple multimodal texts for a school and discipline specific task, the ability to navigate a multitude of texts will impact their lives both in and out of school. We need to further conceptualize how to provide instruction with multimodal texts and continue to increase the complexity of texts for students.
### Appendix A. Texts utilized

<table>
<thead>
<tr>
<th>Text</th>
<th>Type of Historical Source</th>
<th>Type</th>
<th>Mode</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Background Text</td>
<td>Tertiary summary</td>
<td>Unique</td>
<td>Written</td>
<td>Anchor text describing conflict as a whole</td>
</tr>
<tr>
<td>2. Background Video from PBS</td>
<td>Tertiary source</td>
<td>Unique</td>
<td>Video</td>
<td>Anchor video describing Vietnam and the Gulf of Tonkin</td>
</tr>
<tr>
<td>3. LBJ Address</td>
<td>Primary</td>
<td>Corroborated w/2</td>
<td>Video</td>
<td>Video of LBJ’s address to the American people August 4</td>
</tr>
<tr>
<td>4. Telephone conversation between Secretary of Defense Robert McNamara and President Lyndon Johnson</td>
<td>Primary</td>
<td>Corroborated w/3 Contradicted w/5</td>
<td>Audio</td>
<td>Audio of phone call from McNamara presenting LBJ retaliation options in the Gulf of Tonkin.</td>
</tr>
<tr>
<td>5. The Fog of War</td>
<td>Secondary</td>
<td>Contradicted w/3, 4, 7</td>
<td>Video</td>
<td>Video by McNamara stating the attack on Aug 4 did not happen</td>
</tr>
<tr>
<td>6. Vietscar</td>
<td>Primary</td>
<td>Unique Cartoon Corroborated w/5</td>
<td>Political Cartoon</td>
<td>Cartoon suggesting LBJ lied about the Gulf of Tonkin</td>
</tr>
<tr>
<td>7. Telephone conversation between President Lyndon Johnson and National Security Advisor, McGeorge Bundy</td>
<td>Primary</td>
<td>Contradicted w/3 Corroborated w/4</td>
<td>Audio</td>
<td>Telephone conversation about LBJ’s reticence to send troops to Vietnam 3 months before the Gulf of Tonkin Incident.</td>
</tr>
</tbody>
</table>


## Appendix B. Single Text Propositions

<table>
<thead>
<tr>
<th>Text</th>
<th>Propositions</th>
</tr>
</thead>
</table>
| **LBJ Midnight Address**           | 1. Renewed hostility – refers back to August 2\(^{nd}\) attack and an attack on August 4  
2. Attack from August 2\(^{nd}\) repeated today and requires military action  
3. US destroyers were attacked with torpedoes  
4. US military has responded on LBJ’s orders  
5. US sunk two boats and no US casualties  
6. US has acted with honor  
7. The US must not only defend but meet force with force  
8. The attack on the US highlights why the US must provide stability in Vietnam  
9. North Vietnam has attacked the peaceful people of S. Vietnam  
10. US commitment to S. Vietnam is now greater  
11. The US seeks no wider war  
12. The US has told world leaders and the United Nations of their action.  
13. LBJ has asked Congress for authorization to take any necessary measures  
14. Leaders of both parties have pledged their support  
15. Responding to N. Vietnam is in the best interest of peace |
| **LBJ Phone Call with Robert McNamara** | 1. McNamara reports from Admiral Sharp that US is under torpedo attack  
2. LBJ decides to call Rusk and Bundy to discuss retaliatory action  
3. McNamara says we don’t know where the torpedoes are coming from  
4. The attacks could come from two ships  
5. They don’t know if US planes are attacking |
| **The Fog of War**                  | 1. August 2 attack happened  
2. US did not respond  
3. McNamara wasn’t sure what was happening  
   a. One report said sonar  
   b. One said yes an attack  
   c. The report then said yes  
4. Johnson said US would have to escalate  
5. Johnson wanted Congressional approval  
6. Proposed Tonkin Gulf Resolution that gave him complete authority  
7. August 4\(^{th}\) attack was in question  
8. Admiral said yes US Maddox was attacked  
9. McNamara said it was confusing  
10. McNamara says the US was wrong. The attack did not happen |
| **Vietscar**                       | 1. A scar is an ugly thing. The scar is Vietnam.  
2. LBJ’s nose is elongated like Pinocchio – he has lied |
<table>
<thead>
<tr>
<th>Text</th>
<th>Propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBJ Phone Call with National Security</td>
<td>1. There were 16,000 troops in Vietnam at the time of the phone call</td>
</tr>
<tr>
<td>Advisor, McGeorge Bundy</td>
<td>2. LBJ thinks the US might be getting into another Korea</td>
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<tr>
<td></td>
<td>3. LBJ thinks the Chinese might aid North Vietnam.</td>
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<tr>
<td></td>
<td>4. LBJ doesn’t think the US can fight from 10,000 miles away</td>
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<td></td>
<td>5. LBJ states that he doesn’t think war is worth or that the US can get out of a war.</td>
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<td></td>
<td>6. LBJ questions why he is ordering troops to Vietnam</td>
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<td></td>
<td>7. LBJ states that it is easy to go to war but hard to get out of war</td>
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<td></td>
<td>8. 260 Americans had been killed at the time of this phone call</td>
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<td></td>
<td>9. The war lasts 11 years and through two presidents</td>
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<td></td>
<td>10. 58,209 Americans and an estimated 3 million Vietnamese had died by the end of the war</td>
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<tr>
<td>Congressional Voting Record</td>
<td>1. The Majority of the senate supported the Gulf of Tonkin Resolution</td>
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<td></td>
<td>2. 88 Senators voted yes to the resolution</td>
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<td></td>
<td>3. 2 senators voted no to the resolution</td>
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</table>
### Appendix C. Situations model and text propositions

<table>
<thead>
<tr>
<th>Text</th>
<th>US didn’t know if attack really happened before pursuing a declaration of war.</th>
<th>North Vietnam Attacked without provocation</th>
<th>Johnson intentionally knew N. Vietnam did not attack US ships</th>
<th>Johnson acted on the intelligence he had been provided</th>
<th>Attack never happened</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBJ Address</td>
<td>Renewed hostility – refers back to August 2(^{nd}) attack and an attack on Aug 4</td>
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<td>North Vietnam has attacked the peaceful people of S. Vietnam</td>
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<td>US sunk two boats and no US casualties</td>
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<td>US has acted with honor</td>
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<td>The US must not only defend but meet force with force</td>
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<td>LBJ has asked Congress for authorization to take any</td>
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<td>necessary measures</td>
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<td>Leaders of both parties have pledged their support</td>
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<td></td>
<td>Responding to N. Vietnam is in the best interest of peace</td>
<td></td>
</tr>
<tr>
<td>Telephone conversation between Secretary of Defense Robert McNamara and President Lyndon Johnson</td>
<td>McNamara says we don’t know where the torpedoes are coming from</td>
<td></td>
<td>McNamara reports from Admiral Sharp that US is under torpedo attack</td>
<td>LBJ decides to call Rusk and Bundy to discuss retaliatory action</td>
<td></td>
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<tr>
<td><strong>The Fog of War</strong></td>
<td>McNamara wasn’t sure what was happening</td>
<td>August 2 attack happened</td>
<td>August 4th attack was in question</td>
<td>McNamara says the US was wrong. The attack did not happen</td>
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<tr>
<td></td>
<td>a. One report said sonar</td>
<td>US did not respond</td>
<td>McNamara says the US was wrong.</td>
<td>b. One report said yes an attack</td>
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<tr>
<td></td>
<td>McNamara said it was confusing</td>
<td>Admiral said yes US</td>
<td></td>
<td>c. The report then said yes</td>
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<td></td>
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<td>Maddox was attacked</td>
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<td>Johnson said US would have to escalate</td>
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<td>Johnson wanted Congressional approval</td>
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<td>Proposed Tonkin Gulf Resolution that gave him complete</td>
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<td>authority</td>
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<td></td>
<td>McNamara said it was confusing</td>
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<tr>
<td><strong>Vietscar</strong></td>
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<td></td>
<td>McNamara says the US was wrong. The attack did not</td>
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<td></td>
<td>A scar is an ugly thing. The scar is</td>
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<td></td>
<td>happen</td>
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<td></td>
<td>Vietnam.</td>
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<td></td>
<td>LBJ’s nose is elongated like</td>
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</tbody>
</table>

"Vietscar"
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinocchio – he has lied</td>
<td></td>
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<tr>
<td>Telephone conversation between President Lyndon Johnson and National Security Advisor McGeorge Bundy</td>
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<tr>
<td>Congressional voting log</td>
<td>The Majority of the senate supported the Gulf of Tonkin Resolution 88 Senators voted yes to the resolution 2 senators voted no to the resolution</td>
</tr>
</tbody>
</table>


Appendix D. Think-aloud Interview Initial Instructions

“You will read a series of historical sources concerning the Vietnam War and the Gulf of Tonkin Incident. While reading you will focus on what the sources are telling you and how you would use them to answer the following question: “To what extent was President Johnson justified in asking Congress for a resolution for war following the Gulf of Tonkin Incident? While you are reading please tell me what you are thinking about. I may stop and ask you what you are thinking about as well. There is no time limit for reading the eight sources.
Appendix E. Semi-structured Interview Questions

1. “What text(s) would best help you to answer the question?”

2. “Do you think President Johnson was justified in asking Congress for a resolution for war? Why or Why not?”

3. “What types of texts (primary source, audio, video, map) would be most helpful to answer the question?”

4. “What types of sources did you find most useful? Audio, video, or image?”

5. “How interested were you in the task?”

6. “How interested were you in the topic”?

7. “How would you compare this task to other tasks you participated in during US History?”
Appendix F. Coding Scheme

1. During Intro Text Reading: **Blue**
2. After Intro Text Reading: **Sky Blue**
3. During Intro Videotape: **Green**
4. After Intro Videotape: **Bright Green**
5. During Images: **Red**
6. After Image: **Dark Red**
7. During Videos: **Orange**
8. After Videos: **Bright Orange**
9. During Audio: **Purple**
10. After Audio: **Dark Purple**

<table>
<thead>
<tr>
<th>Type of Historical Thinking</th>
<th>Type of practice to engage in Historical Thinking</th>
<th>Local</th>
<th>Within Text (Intra-textual)</th>
<th>Across Texts (Intertextual)</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Value-Based</strong></td>
<td>1. Question or disagree w/author</td>
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<tr>
<td></td>
<td>2. Question or disagree w/actor(s)</td>
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<td>3. Question or disagree w/event or situation</td>
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<td>4. Agree with author</td>
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<td>5. Agree with actor(s)</td>
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<td>6. Agree with event or situation</td>
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<tr>
<td><strong>2. Mentalization or Sense Making not explicitly using Historical Thinking heuristics</strong></td>
<td>1. Paraphrase</td>
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<td>2. Direct quote</td>
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<td>3. Question to clarify</td>
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<td>4. Question veracity of source, author, event, actor</td>
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<td></td>
<td>5. Make an inference</td>
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<td>6. Evaluate comprehension</td>
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<td>7. Evaluate</td>
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<td>8. Elaborate</td>
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<td>9. Re-read</td>
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<td></td>
<td>10. Predict content</td>
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<td></td>
<td>11. Summarize</td>
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<td></td>
<td>12. Other</td>
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</tr>
<tr>
<td>3. Source a document</td>
<td>1. Identify source</td>
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<td></td>
<td>2. Evaluate trustworthiness</td>
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<td>3. Evaluate usefulness</td>
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<td></td>
<td>4. Summarize info about the source (so it’s about....)</td>
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<tr>
<td></td>
<td>5. Express interest in source</td>
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<tr>
<td></td>
<td>6. Predict content of the source</td>
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<tr>
<td></td>
<td>7. Evaluate evidence</td>
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<tr>
<td></td>
<td>8. Elaborate upon evidence</td>
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</tbody>
</table>

| 4. Contextualize | 1. Clarification Question |
| | 2. Inference |
| | 3. Identify place in time |
| | 4. Evaluate the event in regards to time |
| | 5. Sequence events |

| 5. Corroborate Sources | 1. With prior knowledge |
| | 2. Video |
| | 3. Audio |
| | 4. Image |
| | 5. Anchor text |
| | 6. Overall textbase |
| | 7. Synthesize two or more sources |
| | 8. Compare/Contrast sources |
| **6. Historical Analysis using Historical Thinking Tools** | 1. Analysis using evidence |  |  
| | 2. Elaboration of analysis |  |  
| | 3. Acknowledgement of the inquiry question |  |  
| | 4. Acknowledgement of the complexity of the event |  |  
| | 5. Demonstrate historical subjectivity |  |  
| | 6. Identify a theme across sources |  |  
| | 7. Question Inclusivity |  |  
| | 8. Question Coherence |  |  
|
Appendix G. Student Interest Survey

Interest Survey

Each of the items below lists a type of resource or topic. Please indicate your level of interest if you were to use that resource for a school assignment or for the particular topic listed. Please select one circle for each of the items representing your level of interest. 1 represents no interest and 5 represents extreme interest.

<table>
<thead>
<tr>
<th>If I were to study for a classroom assignment using the following resource</th>
<th>I would have:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed articles</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Internet web pages</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Shared online (ex. YouTube) videos</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Photographs</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Audio recordings of speeches and interviews</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Audio recordings of music</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Flash Animations (online animations)</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>A textbook</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Printed primary sources</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Historian interviews</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Documentaries on a DVD</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Charts and graphs</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Political Cartoons</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Maps</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Online Interactive Maps</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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<tr>
<td>Timelines</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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<tr>
<td>Printed Document Based Questions (DBQs)</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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<tr>
<td>Printed speeches and interviews</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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<td>Hollywood movies</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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<tr>
<td>Art</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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<tr>
<td>Historical Artifacts (a physical piece of history)</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
</tr>
<tr>
<td>Articles with different opinions</td>
<td>No Interest ◯ ◯ ◯ ◯ ◯ Extreme Interest</td>
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</tbody>
</table>
If I were to study the following topic in school I would have:

<table>
<thead>
<tr>
<th>Topic</th>
<th>No Interest</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tr>
<td>American History</td>
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<td>World History</td>
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<td>African History</td>
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<td>Geography</td>
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<td>Political Science</td>
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<td>Modern History after World War II</td>
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<td>The American Revolution</td>
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<td>The Civil War</td>
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<td>The Vietnam War</td>
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<td>Presidential decisions</td>
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<td>Controversial topics</td>
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<td>Congressional decisions</td>
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<tr>
<td>Judicial decisions</td>
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<td>Public opinions</td>
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<td>Minority groups (African-Americans, Latinos, Native Americans)</td>
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<td>Effects of war</td>
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</table>

Please choose three of the types of resources you would most want to use to study a topic in school. Place a 1, 2, or 3 next to the three resources you would most want to use. 1 is your first choice, 2 is your second choice, and 3 is your third choice.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Rank</th>
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<tbody>
<tr>
<td>Printed articles</td>
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<tr>
<td>Internet web pages</td>
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<tr>
<td>Shared online (ex. YouTube) videos</td>
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<tr>
<td>Photographs</td>
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<tr>
<td>Audio recordings of speeches and interviews</td>
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<td>Audio recordings of music</td>
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<tr>
<td>Flash Animations (online animations)</td>
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<tr>
<td>A textbook</td>
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<td>Printed primary sources</td>
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<tr>
<td>Historian interviews</td>
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<td>Documentaries on a DVD</td>
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<td>Charts and graphs</td>
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<td>Political Cartoons</td>
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<td>Maps</td>
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<tr>
<td>Online Interactive Maps</td>
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<tr>
<td>Timelines</td>
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<tr>
<td>Printed Document Based Questions (DBQs)</td>
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<td>Printed speeches and interviews</td>
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<td>Hollywood movies</td>
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<tr>
<td>Art</td>
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<tr>
<td>Historical Artifacts (a physical piece of history)</td>
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<tr>
<td>Articles with different opinions</td>
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<tr>
<td>Other:</td>
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</table>
Appendix H. Google Site
### Appendix I. Rubric of Evidence-Based Historical Writing (Monte Sano, 2008)

#### Level 5

**Argumentation:** A central claim, or thesis, responds to the question. This claim is clear and specific and makes a plausible argument. Incorporates persuasive evidence that is specific and relevant to the claim. The weight of the evidence is convincing. Explicit and clear analysis of why and how the evidence supports the claim. There may be inconsequential factual errors. Essay reads as an integrated whole that weaves claim, evidence, and analysis together coherently.

**Historical reasoning:** The claim accounts for the evidence at the student’s disposal. Essay explains how multiple contrasting pieces of evidence generate the claim. Selection and analysis of evidence reveals an understanding of historical significance, causation, or biases of sources pertinent to the topic. Explanation of the connection between claim and evidence integrates relevant historical context. Essay demonstrates an awareness of the tentative, complex nature of historical knowledge.

#### Level 4

**Argumentation:** A central claim, or thesis, responds to the question. This claim is clear and specific and makes a plausible argument. Incorporates persuasive evidence that is specific and relevant to the claim. The weight of the evidence is compelling. Explicit and clear analysis of why and how some of the evidence supports the claim. There may be inconsequential factual errors or misinterpretations. Essay integrates evidence, analysis, and claim with more coherence than in a list.

**Historical reasoning:** The claim accounts for most of the evidence at the student’s disposal. Essay explains how multiple pieces of evidence generate the claim. Selection and analysis of evidence reveals a developing understanding of historical significance, causation, or biases of sources pertinent to the topic. Explanation of the connection between claim and evidence integrates relevant historical context and avoids generalization. Essay demonstrates some awareness of the tentative, complex nature of historical knowledge.

#### Level 3

**Argumentation:** A central claim, or thesis, responds to the question. This claim is clear and believable but may not be specific. Incorporates credible evidence that is fairly specific and relevant to the claim. The weight of the evidence may be insufficient to fully warrant the claim. Explicit analysis of why and how the evidence supports the claim is limited and/or inconsistent. There may be minor factual errors or misinterpretations. Essay is logically sequenced but may read more as a list of details that may not cohere.

**Historical reasoning:** The claim accounts for some of the evidence at the student’s disposal. Selection and analysis of evidence reveals a limited understanding of historical significance, causation, or biases of sources pertinent to the topic (e.g., the author may not explain how pieces of evidence relate and may not distinguish between primary and secondary evidence). The essay may note contextual factors; however, the essay may still make some generalizations. Essay demonstrates a limited awareness of the tentative, complex nature of historical knowledge.
<table>
<thead>
<tr>
<th>Level 2</th>
</tr>
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<tbody>
<tr>
<td><strong>Argumentation</strong>: Argumentative statements respond to the question, but the essay may have no central focus. If there is a main claim, it is typically unclear, vague, or weak. Evidence is limited, irrelevant to the claim, and/or incorrectly used. There is little or no analysis of how and why the evidence supports the claim. Essay may contain factual errors or misinterpretations. Explanations of evidence and claim may be illogically sequenced, unclear, or incomplete.</td>
</tr>
<tr>
<td><strong>Historical reasoning</strong>: Claim attempts argument but may not account for evidence at the student’s disposal. Selection and analysis of evidence may reveal an understanding of history as a compilation of details. This may reveal little or no understanding of historical significance, causation, biases of sources, or context. Instead, most of the evidence is treated equally (e.g., selection of evidence may seem arbitrary, author may not distinguish between primary and secondary sources). May use contemporary values to judge the past. May use personal views, generalizations, absolutist language, or ahistorical evidence (e.g., use of evidence from the present-day to support an argument about another period).</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 1</th>
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<tbody>
<tr>
<td><strong>Argumentation</strong>: A central statement may describe a topic rather than make an argument; a central claim may not respond to the question; and/or there may be no central claim. If there is a claim, it may be vague, unclear, or implausible. Little or no evidence. Evidence may be a summative list of detail, irrelevant to the claim, and/or incorrectly used. Essay may contain significant factual errors or misinterpretations. Explanations of evidence and claim may be illogically sequenced, unclear, incomplete, or missing.</td>
</tr>
<tr>
<td><strong>Historical reasoning</strong>: The essay does not make a plausible historical interpretation in response to the question. If facts are included, they may take the form of a summary or chronology of the past. Selection and analysis of evidence may reveal an understanding of history as a compilation of details. This reveals no understanding of historical significance, causation, biases of sources, or context. Instead, the evidence is treated equally. May use contemporary values to judge the past. May use generalizations, personal views, absolutist language, or ahistorical evidence to make a case.</td>
</tr>
</tbody>
</table>
References


http://act.org/path/policy/reports/reading.html


HyperRESEARCH 2.8.3. (2009). Computer Software. ResearchWare, Inc.


Junquiera, E.S. (2008). Challenging the boundaries between standard and popular language situated in historical contexts: The communicative practices of high-school Brazilian students crafting hybrid multi-modal ways with words. *Language and Education.* 26, 6, 393-410.


Vita

Michael Manderino

EDUCATION

University of Illinois @ Chicago 2005-2011
PhD Literacy, Language, and Culture

University of Illinois @ Chicago 2002-2004
MEd Educational Studies

University of Illinois @ Urbana-Champaign 1991-1996
B.A. Social Studies Education
Certification: Type 09

University Experience

Northern Illinois University
2011 – Present Assistant Professor

Courses Taught

Northern Illinois University
2011-Present Supervisory Problems in Reading

University of Illinois at Chicago
2008-2011 CI 414 Middle and High School Literacy (Undergraduate)
2009-2011 CI 504 Secondary Literacy (Graduate)

Lewis University
2009 ED 504 Reading and Technology (Graduate)
2008 & 2011 ED 575 Practical Research for Learning Communities (Graduate)

Research Projects

2010-Present University of Illinois at Chicago, Chicago, IL
Graduate Research Assistant on IES funded Reading For Understanding, Project READI

2006-2007 University of Illinois at Chicago, Chicago, IL
Teacher Researcher on Carnegie Grant, Literacy in the Disciplines

2005-2007 University of Illinois at Chicago, Chicago, IL
Graduate Research Assistant on IES funded Digital Literacy Project
SECONDARY EDUCATION EXPERIENCE

2009-2011  Leyden Township High Schools, District 212, Franklin Park, IL  Literacy Coordinator

2003-2011  Leyden Township High Schools, District 212, Franklin Park, IL  Social Studies Instructor

1996-2003  Joliet Township High School, District 204, Joliet, IL  Social Studies Instructor

SCHOLARLY PRESENTATIONS


**SERVICE**
- Graduate Student Reviewer for the 59th Annual National Reading Conference Yearbook.
- Reviewer for International Conference of the Learning Sciences, Annual Meeting 2010
- Reviewer for the National Reading Conference Areas 6 and 12, Annual Meeting 2007-2011
- Session Chair for Critical Theories at the Graduate Student Conference in Education 2006

**Awards and Grants**
- Illinois Literacy Grant Recipient
- Ecolab Grant Recipient
- Joliet Township High School Foundation Grant Recipient
- Advanced Placement Scholar Teacher

**Professional Memberships**
- National Reading Conference/Literacy Research Association
- International Reading Association
- American Education Research Association
- Education Group of Graduate Students at UIC
March 31, 2009

Michael Manderino, MEd
Curriculum and Instruction
305 Hickory Oaks Drive
Bolingbrook, IL 60490
Phone: (815) 370-2878

RE: Protocol # 2009-0047
“Student Integration of Multiple Multimodal Documents in Historical Inquiry”

Dear Mr. Manderino:

Your Initial Review application (Response To Modifications) was reviewed and approved by the Expedited review process on March 19, 2009. You may now begin your research.

Please note the following information about your approved research protocol:

Protocol Approval Period: March 19, 2009 - March 18, 2010
Approved Subject Enrollment #: 56

Additional Determinations for Research Involving Minors: The Board determined that this research satisfies 45CFR46.404, research not involving greater than minimal risk. Therefore, in accordance with 45CFR46.408, the IRB determined that only one parent's/legal guardian's permission/signature is needed. Wards of the State may not be enrolled unless the IRB grants specific approval and assures inclusion of additional protections in the research required under 45CFR46.409. If you wish to enroll Wards of the State contact OPRS and refer to the tip sheet.

Performance Sites: UIC, West Leyden High Schools, District 212 - IL
Sponsor: None

Research Protocol:

1) Student Integration of Multimodal Sources in History; Version 3; 03/16/2009

Recruitment Materials:

a) Parent Cover Letter, Student Integration of Multiple Multimodal Texts (English); Version 1; 01/06/2009
b) Parent Cover Letter, Student Integration of Multiple Multimodal Texts (Spanish); Version 1; 01/06/2009
c) Recruitment Script, Reading Multiple Documents in History; Version 1; 02/22/2009

Phone: 312-996-1711 http://www.uic.edu/depts/ovcr/oprs/ FAX: 312-413-2929
Informed Consent:
   a) Teacher Assent, Reading Multiple Documents in History; Version 2; 03/16/2009

Assents:
   a) Student Interview Consent, Reading Multiple Documents in History; Version 2; 03/16/2009
   b) Student Assent, Reading Multiple Documents in History; Version 3; 03/16/2009

Parental Permissions:
   a) Parental Consent Interview, Reading Multiple Documents in History (English); Version 3; 03/16/2009
   b) Parental Consent, Reading Multiple Documents in History (English); Version 3; 03/16/2009
   c) Parental Consent Interview, Reading Multiple Documents in History (Spanish); Version 3; 03/16/2009
   d) Parental Consent, Reading Multiple Documents in History (Spanish); Version 3; 03/16/2009

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes,
(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

<table>
<thead>
<tr>
<th>Receipt Date</th>
<th>Submission Type</th>
<th>Review Process</th>
<th>Review Date</th>
<th>Review Action</th>
</tr>
</thead>
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<tr>
<td>01/20/2009</td>
<td>Initial Review</td>
<td>Expedited</td>
<td>02/16/2009</td>
<td>Modifications Required</td>
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<tr>
<td>02/23/2009</td>
<td>Response To Modifications</td>
<td>Expedited</td>
<td>03/09/2009</td>
<td>Modifications Required</td>
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<tr>
<td>03/16/2009</td>
<td>Response To Modifications</td>
<td>Expedited</td>
<td>03/19/2009</td>
<td>Approved</td>
</tr>
</tbody>
</table>

Please remember to:

→ Use your research protocol number (2009-0047) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,
"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.
We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-2014. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Sandra Costello
Assistant Director, IRB # 2
Office for the Protection of Research Subjects

Enclosures:

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**
   2. **Informed Consent Document:**
      a) Teacher Assent, Reading Multiple Documents in History; Version 2; 03/16/2009

3. **Assent Documents:**
   a) Student Interview Consent, Reading Multiple Documents in History; Version 2; 03/16/2009
   b) Student Assent, Reading Multiple Documents in History; Version 3; 03/16/2009

4. **Parental Permissions:**
   a) Parental Consent Interview, Reading Multiple Documents in History (English); Version 3; 03/16/2009
   b) Parental Consent, Reading Multiple Documents in History (English); Version 3; 03/16/2009
   c) Parental Consent Interview, Reading Multiple Documents in History (Spanish); Version 3; 03/16/2009
   d) Parental Consent, Reading Multiple Documents in History (Spanish); Version 3; 03/16/2009

5. **Recruiting Materials:**
   a) Parent Cover Letter, Student Integration of Multiple Multimodal Texts (English); Version 1; 01/06/2009
   b) Parent Cover Letter, Student Integration of Multiple Multimodal Texts (Spanish); Version 1; 01/06/2009
   c) Recruitment Script, Reading Multiple Documents in History; Version 1; 02/22/2009

cc: Danny Martin, Curriculum and Instruction, M/C 147
Cynthia R. Shanahan, Curriculum and Instruction, M/C 147