Coherence and Historical understanding in children's Biography and Historical Nonfiction Literature: A Content Analysis of Selected Orbis Pictus Books

Sandip LeeAnne Wilson

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COHERENCE AND HISTORICAL UNDERSTANDING IN CHILDREN’S BIOGRAPHY AND HISTORICAL NONFICTION LITERATURE:
A CONTENT ANALYSIS OF SELECTED ORBIS PICTUS BOOKS

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A THESIS
Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Education (in Literacy Education)

The Graduate School
The University of Maine
December, 2001

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Date September 23, 2001
The purpose of this study was to investigate a selection of children’s historical nonfiction literature for evidence of coherence. Although research has been conducted on coherence of textbook material and its influences on comprehension there has been limited study on coherence in children’s nonfiction literature. Generally, textual coherence has been seen as critical in the comprehensibility of content area textbooks because it concerns the unity of connections among ideas and information. Disciplinary coherence concerns the extent to which authors of historical text show readers how historians think and write. Since young readers are apprentices in learning historical content and conventions of historical thinking, evidence of disciplinary coherence is significant in nonfiction literature for young readers.

The sample of the study contained 32 books published between 1989 and 2000 ranging in length from less than 90 pages to more than 150 pages. Content analysis was
the quantitative research technique used to measure 84 variables of textual and
disciplinary coherence in three passages of each book, as proportions of the total number
of words for each book. Reliability analyses and an examination of 750 correlations
showed the extent to which variables were related in the books.

Three important findings emerged from the study that should be considered in the
selection and use of children's historical nonfiction literature in classrooms. First,
characteristics of coherence are significantly related together in high quality nonfiction
literature. Second, shorter books have a higher proportion of textual coherence than
longer books as measured in three passages. Third, presence of the author is related to
characteristics of coherence throughout the books. The findings show that nonfiction
literature offers students content that researchers have found textbooks lack. Both
younger and older students have the opportunity to learn the conventions of historical
thinking as they learn content through nonfiction literature. Further, the children's
literature, represented in the Orbis Pictus list, shows students that authors select, interpret,
and question information, and give other interpretations. The implications of the study for
teaching history, teacher preparation in content and literacy, school practices, children's
librarians, and publishers of children's nonfiction are discussed.
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Chapter I

INTRODUCTION, THE STUDY, ITS BACKGROUND, AND PERSPECTIVE OF THE INVESTIGATOR

"Over the last decade, as the kindergarten through grade eight curriculum has become transformed through school reform movements, assessment and testing procedures, and state standards for learning, nonfiction books\(^1\) for children have become central in school curriculum" (Bamford & Kristo, 2000, p. i). Children at an earlier age are reading and being instructed with a variety of texts including nonfiction books. Teachers strive to meet their curricular expectations at a time when "nonfiction literature has become a resource of information and a tool for learning for both children and teachers and, in some cases, an alternative to textbooks" (Bamford & Kristo, 2000, p. ii). Yet teachers feel they do not meet the demands of reading the texts that challenge their students. As one teacher put it, "I haven't done enough to prepare them... Reading textbooks and writing reports in the middle school are different from what we have kids read and write in elementary school" (Keene & Zimmerman, 1995, p. 81).

This chapter is an introduction to the study of coherence in a selection of children's nonfiction. It presents the research questions, the assumptions, and the limitations of the study. It includes background and the perspective for the study.

Reading nonfiction, or informational text, presents a particular set of challenges for children. Material can be presented as a narrative; it can be compared and contrasted;

\(^1\) The terms informational text and nonfiction text are used interchangeably. Frequently the term expository text is also used in the research literature (Duke, 1999). I have found the generic term, "text," used often in the research literature to refer to print (cf. Meyer, 1975, 1985; Black, 1985), and for the purposes of this study I will consider "text" as referring to the printed word.
or it can be presented as a solution to a problem, a causal explanation, or a description (Bamford & Kristo, 1998; Meyer, 1985; Raphael & Hiebert, 1996). One text can have a number of structures embedded in it depending on the author’s purpose and practical considerations. A list of facts illustrating the author’s main point might be preferable to elaborated paragraphs when space is a prime consideration. However, the coherence of the text is the basic component of its structure (Black, 1985). Single statements, or propositions are connected into larger units of information and these are clustered into networks, such as compare and contrast structures.

Herber (1984) notes that children should not be expected to read informational text independently, they need assistance in creating new knowledge. “Students who are properly placed in a curriculum will find their texts ‘too difficult’ to use independently” (p. 227). Herber writes that children need help in building an understanding of how concepts are formed and how ideas connect. As children learn to use and analyze a range of genres, they are introduced to culturally constructed ways of learning and communicating (Levstik, 1998). Fluency, or lack of it, in forms of discourse affects self-perception in relation to others, one’s ability to function in a diversity of environments, and how one is viewed by others (Delpit, 1992). Children are apprentices of historical or scientific thinking. They are not experts in making the connections in content that is discipline specific. Herber says, “Too often instruction in a content area emphasizes collection and repetition of information. Too often, therefore, students fail to perceive the overarching ideas, the significance of the information they have collected, or its usefulness” (p. 299).
Herber’s observations of sixteen years ago echo in more current research. When reading nonfiction literature, fifth grade children list their information when they make presentations (Barton, 1997). High school students look for, and recount, information as a list of facts and do not consider the source when reading and discussing historical documents (Wineburg, 1991b; Wineburg & Fournier, 1994). Brophy and VanSledright (1997) have noticed that children’s historical accounts tend to be primarily narrative descriptions delivered as factual information. Brophy and VanSledright observe, “There were few comments on the nature and quality of the evidence or references to alternative interpretations” (p. 253). Because of their schooling in textbook reading, students appear to take the same kinds of elements they learn from textbooks and apply them to the literature they read. According to Wineburg (1991a) historical thinking is “seeing human motive in the texts we read” (p. 518). Expert readers of historical text see text as speech acts, rather than as only a presentation of information or neutral description of events.

The document is important “not for what it says, but for what it does” (p. 498).

The research literature on children’s study of history in the elementary and middle grades provides evidence that children find reading their history texts difficult and confusing, a “huge mountain to climb” (Crismore, 1983, p. 3), or uninteresting (VanSledright & Kelly, 1998). The sentiment continues into high school where students find their texts boring, detached, and like a lecture (Paxton, 1997). In light of problems children have, examining the historical literature children read has occupied the attention of researchers for more than a decade (cf., Beck, McKeown, & Gromoll, 1989), but research has focused on textbooks and not historical nonfiction.
Paxton (1999) notes that discipline-based ways\(^2\) of thinking includes the “ability to evaluate materials and information in relation to their context and their source and to integrate this into [students’] discourse” (p. 323). Wineburg (1991b) refers to these ways of thinking as the heuristics historians use as they read historical documents: they corroborate accounts, contextualize documents, and evaluate the reliability of the source. For the purposes of this study, history is seen as public history\(^3\). From this perspective, understanding the interpretive nature of history is critical. Brophy and VanSledright (1997) write, “Students can acquire understanding of the basic processes that historians use to construct accounts based on evidence, and how contrasting agendas lead historians (and other stakeholders in historical accounts) to emphasize different aspects of history” (p. 254). The perspective Brophy and VanSledright have on historical understanding\(^4\) suggests that historical understanding has value beyond the requirements of school work.

Crismore (1984a) points out that history has two meanings, the past and the memory of the past. "The literary historian is interested in recreating the past so she is

---

\(^2\) In the interests of simplifying language the term "domain knowledge" is used instead of content or content-area knowledge, domain specific knowledge, declarative knowledge, discipline-based knowledge, or procedural knowledge. The term Domain Knowledge is used because it is consistent with the research instruments of the study. The specialized coherence of historical text has been referred to as disciplinary coherence (Deborah Appleman, personal communication, October, 2000).

\(^3\) In this dissertation public history is the focus rather than historiography, which might be summarized as the study of historical writing.

\(^4\) The term historical understanding is used in this dissertation, but a distinction between historical knowledge and historical understanding needs to be clarified. For this distinction, VanSledright (1996a) writes,

One could make the case that [historical knowledge and understanding] are different entities; the former is contained in libraries (in fact, date, interpretation, explanatory form) and the other resides in the human mind. Historical knowledge is essential to sense making and historical understanding. . . . In the context of students' historical understanding, I assume it to depend upon the possession of historical knowledge. It is how they use this knowledge in reconstructing their accounts that displays (or doesn't display) their understanding. . . . One could have knowledge without understanding. . . . I am inclined to think that knowledge without understanding is promoted by the tradition of archivism. (p. 324)
interested in the drama and the actors” (p. 280). Paxton (1999) notes that in writing about the past, “historians must sift through unwieldy available evidence of the past, presenting this in some conceived order of relevance. This is an act of interpretive judgment” (p. 319). Instead of reporting the facts, the writer explains them or their significance in the spirit of inquiry, exploration, tentativeness, and probable judgments (Crismore, 1984a). The reader, instead of receiving facts, is apprised of the writer’s perspective on them.

In her book, Mapping the World, about the history of map making, Johnson (1999) poses guiding questions that weave through the chapters. She asks the information-collecting question, “Who made the map?” (p. 4). She proceeds to a more inferential question, “How was the map made?” She asks questions that invites thought about the culture of the mapmaker’s work and of the author’s inquiry. She asks, “What was the purpose for the map?” and finally, “What kind of world do we see reflected in its lines and shapes?” (p. 4). These questions suggest that behind the maps are individual people who have different perspectives on the world, and behind the book about maps is a person writing the book. Johnson presents her perspective in her questions.

In the first chapter of his book, When Plague Strikes: The Black Death, Small Pox, AIDS, Giblin (1995) writes, “Much could be written about each of the different epidemic diseases, from tuberculosis to typhus to infantile paralysis . . . . This book tells the stories of three of the most serious and damaging plagues” (p. 7). Instead of simply imparting facts about their topics, authors such as Johnson and Giblin, situate themselves in their topics with their questions and purposes.

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5 In this dissertation history means the written account of the past rather than history as the past, such as found in such phrases as, “the lesson of history . . . .,” or “history was made in the razor-thin winning margin of the election results.”
The interpretive position in writing history, has a long heritage. In the opening paragraph of his history Herodotus (1990) explains:

> These are the researches [sic] of Herodotus Halicarnassus, which he publishes in the hope of preserving from decay the remembrance of what men have done and of preventing the great and wonderful actions of the Greeks and the Barbarians from losing their due meed of glory. (p. 1)

In a later section he acknowledges his sources. “I shall follow the Persian authorities” (p. 23), and the existence of multiple reports, “I know three ways in which the story of Cyrus is told, all differing from my own” (p. 23). Paxton (1999) notes that in books for adult readers discipline-based writing occurs. “Books [for adults] include short biographical descriptions of the author, along with introductory chapters describing the arc of the research and the struggles during the data collection” (p. 320). Both Paxton and Crismore (1984a) note that textbooks for children, in their taking a wide swath of history, serve as introductory texts, yet “Historians take a focused approach... and make little effort to conceal their agency upon the texts they write” (Paxton, p. 320).

Crismore (1984a) suggests that, in the past, the teacher has mediated students’ reading of textbooks by asking the questions and explaining overarching concepts of children’s texts. The teacher is seen as the authority on historical information (Levstik & Smith, 1996). If children are to be independent readers teacher mediation is a preliminary step toward independence. Pressley (2001) encouraged wide reading and writes, “Comprehension should be more certain as a consequence of extensive reading of and exposure to excellent literature and expository material. Literature exposure increases reader knowledge” (p. 553).
Children start their education with wanting to know (Levstik, 1993). They are fascinated by content-area learning from their early years. Yet, textbooks have often determined the content that students read (Beck, McKeown, Sinatra, & Loxterman, 1991; Romanowski, 1996; Tyson-Bernstein, 1988; Wineburg, 1994) so researchers have focused on how textbooks support children's reading. Attempts to make textbooks more interesting with engaging detail (Hidi & Baird, 1981) or a sense of the author's voice (Beck, McKeown, & Worthy, 1995; Paxton, 1997) have been effective in increasing student interest in their texts. But these changes have not necessarily enhanced comprehension (Britton, Dusen, Gogoz, & Glynn, 1989; Britton, Golgoz, & Glynn, 1993; Duffy et al., 1989; Paxton, 1999).

Where the changes have been effective they have improved the text's coherence (Beck, McKeown, & Gromoll, 1989; Beck & McKeown, 1994; Duffy et al., 1989; Paxton, 1997). In general terms, coherence as a quality of text. Anderson and Armbruster (1984) write, "Coherence refers to how smoothly the ideas are woven together. The relationships among ideas must be clear enough so that there is a logical connection or 'flow of meaning' from one idea to the next" (p. 204) in order to promote the reader's comprehension and learning. A coherent text helps the student read it as an integrated whole rather than as a collection of separate sentences (Kantor, Anderson, & Armbruster, 1983). Rabinowitz (1987) suggests that coherence is the core of finding meaning in literature. "The majority of critical work aims at setting out the basic coherence of literary works, their 'unity' or 'basic pattern' or 'overarching meaning'" (p. 141). Beck and McKeown (1994) write, "By coherent text we mean text in which the sequencing of
ideas makes sense and the nature of the ideas and their relationships is made apparent” (p. 237).

Crismore (1983, 1984a) used both textbooks and adult trade books, such as The Uprooted (Handlin, 1973), in her analysis of metadiscourse, which is the presence of the author’s voice to animate the information and guide the reader. Richgels, Tomlinson, and Tunnell (1993) conducted a comparative text structure analysis of a selection of history textbooks and trade books. Of the seven trade books they selected for analysis, six were classified as narrative and Children of the Wild West (Freedman, 1983) was classified as informational. Although researchers have revised passages in textbooks so they are more coherent, the same attention has not been given trade books. The focus of this study is the coherence of historical nonfiction trade books.

In a world where information is confetti in a parade, children’s nonfiction literature does more than inform. It can provide the entry into critical dimensions of reading and history. Being a good reader of history means an interrogation of the texts and their authors, a refusal to accept a text at face value, and a skeptical stance (Beck, McKeown, & Worthy, 1995; VanSledright & Kelly, 1998; Wineburg, 1994). Rather than being vessels into which information is poured, children need to become actively engaged with the text.

**The Problem and Research Questions**

The purpose of this study is to examine aspects of coherence in a selection of notable historical nonfiction trade books to find the extent to which characteristics of coherence occur in books published for children and young adults. The categories of the study have been developed on the basis of the literature on the research into coherence.
Textbooks have been the focus of research into coherence in content reading. The exploration of the coherence of historical nonfiction has been neglected, yet children read nonfiction trade books sometimes instead of textbooks. Historical nonfiction presents challenges to readers; yet little is known about how nonfiction influences their thinking and learning. Only recently have researchers explored the processes of students as they read historical material in textbooks or in reading multiple sources, other than textbooks.

The books have been selected from the list of Orbis Pictus Award winners and honor and notable books over the period the award has been given since 1989. This award is the highest literary honor in children’s nonfiction. Books in this collection have been selected for literary excellence in accuracy, organization, design, and style by the Orbis Pictus Committee of the National Council of Teachers of English. The committee draws from a range of expertise in its composition of teachers and professors of children’s literature, teacher education, and academic disciplines.

The books of the Orbis Pictus Award list are published for children from kindergarten through grade eight, yet older students are finding that good children’s nonfiction is not just for the “little kids” (Dr. Anne Pooler, personal communication, October, 2000). The audience of the Orbis Pictus books is not necessarily the audience for which they were published. Research and anecdotal evidence is emerging that young children learn from books that authors and publishers intended for older readers (Duke & Kay, 1998; James Cross Giblin, personal communication, May, 1998).

Research Questions

This research will examine elements of coherence as they relate to historical understanding in high quality historical nonfiction.
1. To what extent are selected characteristics of coherence (i.e., support of generalizations, causal explanations and their significance, vocabulary, and explanation of salience and certainty of information) demonstrated in a sample of historical nonfiction books?

2. To what extent does children's historical nonfiction, selected for high quality, demonstrate selected characteristics of disciplinary coherence (i.e., author's perspective, integration of primary sources, suggestion of alternative interpretations, resolution of conflicting sources)?

3. To what extent is the degree of coherence influenced by the length of the book?

4. To what extent does the author's voice, as developed through metadiscourse, contribute to coherence?

5. To what extent are the characteristics of textual coherence (support of generalizations, causal explanations and their significance, vocabulary, and salience and certainty of information) and disciplinary coherence (author's perspective, integration of primary resources, suggestion of alternative interpretations, and resolution of conflicting evidence) related across the length of a book?

Assumptions

1. Limiting the study to historical nonfiction provides an opportunity to relate the research literature to trade books.

2. The teaching of history is an important component of the elementary and middle school curriculum.
3. Children reading historical nonfiction are apprentice historians. Constructing meaning from historical nonfiction text makes domain specific demands on students and coherent text can help them understand how authors think and write as historians.

4. Historians undertake particular procedures and ways of thinking that are different, from a person telling a story, and children need to be assisted in developing those ways of thinking by reading coherently written text.

5. Coherence in historical text assists children in developing historical understanding.

6. Characteristics of coherence can be demonstrated in children’s historical nonfiction.

7. The books selected through the Orbis Pictus Committee will provide an adequate body of work for this study.

8. Children’s historical nonfiction could possibly be an alternative to textbooks in literacy instruction and content area reading for teachers of diverse expertise, who want coherent historical text that meets the needs of individual students.

9. The analysis includes the running text of the book as well as the author’s notes, source lists, photographs, captions, and other visuals such as charts, maps, diagrams because they contribute to the overall coherence of the book.

10. The study of history in academia differs from public history which is history written for people in school, families, and the lay public. There is a range of historical thinking, the thinking that goes into discussion among professors, the thinking of the general adult public, and the thinking in which children engage with their sense of historical time and significance. To write for someone who is twelve is different from
writing for academic colleagues (Dr. Martha McNamara, personal communication, September, 2000).

11. Reading, coding, and analyzing three passages of a book will adequately reveal the coherence of the overall text. Passages, beginning, middle, and end are based on a word length in a one to three proportion to the total words of the running text of the book.

**Limitations**

1. The books selected are historical nonfiction. The choice does not imply a position about the relative role of history in the social studies curriculum, or of its role in reading programs, literacy instruction, and content knowledge across the curriculum.

2. The study is focused on those items that can be quantified through content analysis. The study focuses on coherence of the paragraphs, groups of paragraphs, and chapters of books. Although within sentence coherence is related to the paragraph, the focus is on how sentences comprise paragraphs and larger units of text, such as chapters, in an overall unity of ideas and explanations.

3. The investigation of coherence is limited to those characteristics related to disciplinary coherence that can be objectively and systematically described.

4. The books considered in this study are a sample of the historical nonfiction from the Orbis Pictus Award list of winners, honor and notable books.

5. Only books since 1989 are considered.

6. Book dust jackets of books will not be part of the sampled passages.

7. The study may be limited by the researcher’s unintentional bias although every effort has been made to develop representative categories of disciplinary coherence.
8. The study addresses characteristics of coherence related to historical understanding.

Background of the Study

The background of the study is divided into four sections. The first section describes the nature of coherence. The second section concerns the connection between coherence and cognitive processing because the connection is at the core of the importance of coherence in nonfiction text. The third section explores the discipline specific coherence of historical nonfiction. The fourth section concerns the perspective taken in this study.

Coherence

A useful metaphor for coherence is a tapestry. One particular tapestry, exhibited at one time in the Boston Museum of Fine Arts, was woven in South America by indigenous weavers for an aristocratic, Spanish family during the sixteenth century. At the middle of the immense piece is a coat of arms depicting the power and accomplishments of the family. Around and reaching behind it are intertwined vines and blossoms of South American plants, images of mythic and symbolic figures, celestial bodies, animals, people engaged in different activities of daily life, and their meeting the Spanish.

The whole tapestry tells more than any one part. Depending on the “reader’s” prior understanding of European history, color in tapestry, and patterns of cultural subjugation, the complicated information around the coat of arms becomes part of the understanding of the tapestry. If parts of the tapestry were cut out, the coherence of the

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6 The study does not focus on analyzing context, background information, and latent content.
piece would be interrupted. Similarly, in the coherence of written text, the reader brings prior knowledge and an understanding of conventions of language and forms of discourse that contribute to a construction of coherence. However, the author of the text can assist the reader in constructing coherence. Like the tapestry with its text—the coat of arms and the information imparted by the weavers through color, image, and composition—in the written text the author can make explicit the connections among all the pieces of information. The tapestry also has a subtext, another layer of the tapestry’s coherence, the perspective of the weaver and the message meant for a particular audience.

Coherence operates at both the level of the whole text as well as at the level of individual sentences. At the global level, the level of the whole text, a text is coherent to the extent that it facilitates the integration of high-level ideas across the entire discourse. Anderson and Armbruster (1984) suggest that titles and visual displays contribute to global coherence by giving the “big picture at a single glance” (p. 204). At the local level of individual sentences and paragraphs, “connectives that make explicit temporal, causal, spatial, or conditional relationships” (p. 205). The tapestry metaphor illustrates local and global coherence. Along one border are small images showing the life cycle of farming in a sequence of squares. These narratives appear all around the tapestry about different topics. The vines that intertwine the borders with the coat of arms in the middle of the piece contribute to the global coherence. Stepping back the reader sees that all the parts, the coat of arms and its context of detail and information, are unified.

**Coherence and Cognitive Processing**

A body of literature has developed over the last two decades that suggests reading is a complex cognitive process that children engage in when they construct a
representation of what they read. From the perspective of cognitive processing, the reader identifies each new piece of information and decides how it relates to information already given. Also, the reader draws connections between outside knowledge and text information. Children bring to their reading knowledge of forms of text and of the world. That is, in their reading they bring schemata of reading text forms, content knowledge, and knowledge about the world, human actions, physical events, objects, and locations (Black, 1985). The point of reading is more than the recitation of facts from a page (Beck & McKeown, 1994). The point is to make connections with the knowledge the reader already possesses to build new knowledge.

Researchers have become interested in what happens in the process of reading, and they distinguish between remembering the written word and learning from text (Kintsch & Van Dijk, 1978; Van Dijk & Kintsch, 1983). The ability to remember the literal meaning of a text is a prerequisite for understanding and learning from it. The facts cannot be derived without understanding the words the text uses and the sentences it contains, but the literal recall is only the beginning of understanding. In addition to the understanding that is text based, readers construct, according to Van Dijk and Kintsch (1983), cognitive representations of the situation, or event, described in the text. Such representations feature the knowledge “that is left implicit in the text” (p. 283). To construct the representations the reader makes connections between prior knowledge and the information in the text. Van Dijk and Kintsch call this construction the "situation model" of the text. Processing and comprehension can become more difficult when a text lacks explicit semantic links between sentences and paragraphs (Irwin, 1983). A growing concern about how a text can support the cognitive process in reading has caused
researchers to focus on the features of text that support or impede construction of meaning.

The explanations of causal relationships are central to coherence (Black, 1985; Black & Bern, 1981) and connect actions in an historical sequence that suggests significance and consequence. For example, in his book, Charles Lindbergh: A Human Hero, Giblin (1997) writes that in order to have the money to purchase the airplane he wanted, Lindbergh had to attract the "support of backers" (p. 41). Regarding causal explanations Black and Bern (1981) write,

Explicit coherence for young readers should be a primary goal of writers of stories. By this we mean clear, ordered statements of the events so that they are readily understood, and their causal relations are easily inferred from the order of events. This also means that causal sequences should not be disrupted by introduction of new and irrelevant causal chains or by descriptive detail that is unnecessary to the current chain. Such writing requires the writer to pose questions to him or herself on the logical necessity for events in relation to other events. (p. 109)

Coherence is not an algorithm (Beck, McKeown, Sinatra, & Loxterman, 1991). What's needed to promote coherence varies with the text, the topic, and the reader. Providing background information necessary to explain the motivation for people's actions is part of the context of historical accounts. Coherence breaks down when the text does not provide information that allows a reader to activate context for the text content (Beck et al., 1991; Bransford & Johnson, 1973).
Rising interest in research of expert knowledge has come to the attention of educators in history (Wilson & Wineburg, 1988; Wineburg, 1991a, 1994). Wineburg (1994) wrote that although research in cognition has explored the nature of expert content knowledge in a number of fields, little study has been done on how expert knowledge develops in history. Research into the role of expert knowledge in text processing has shown that individuals with high content knowledge are better able to comprehend important information than readers who do not have that knowledge (Pearson, Hansen, & Gordon, 1979; Spilich, Vesonder, Chiesi, & Voss, 1979). High knowledge readers make more connections among pieces of information and can create more categories in which to think about the information they gather (Chi & Keoske, 1983).

Wineburg (1994) has noted that a model of representations, or what Van Dijk and Kintsch (1983) refer to as, a situation model, is particularly applicable to reading historical documents. Wineburg writes, “For example, primary sources that describe a battle are scarcely understandable if a reader cannot construct a representation of where the forces stood, what the battlefield looked like, and how the commander might have felt as he faced his adversary” (p. 88). A simple example of a situation model is the following. A text on the American Revolution says that the colonel told the courier to let the soldiers at the front line know they should move forward into battle. The soldiers advance at a run. The situation model is that the courier, followed through on his orders. He proceeded, presumably in haste, to the front lines, and gave the message to the soldiers to advance at a run (McNamara, Kintsch, Songer, & Kintsch, 1996). In creating a
situation model such as this one, the reader infers the parts of the event that are implicit in the written text.

Wineburg (1994) writes that in creating a network of connections, such as undertaking the act of writing history, "or of translating actions, motives, and events into words" (p. 90), the author chooses from among all the possible variations of connections. The representation of the past is constrained by "ordering events sequentially even when they occurred simultaneously" (p. 90). Language is not neutral but entails a perspective about the world and a perspective on thinking about events and people in it. Coherence relates to the connections within a text but Wineburg suggests it does more. The author's thinking and writing about the information is as much an historical event as the events in the text. Historical accounts are more than narrative. Reading historical text is more than an understanding that is either based on the text or based on the situation that is constructed during repeated readings. Wineburg (1994) writes, "The writing of history is not simply recording what happened. Rather, the writing of history is itself an act that reflects human authorship and is fraught with human concerns" (p. 90). The writing of history is as much the solution of a puzzle and an argument as it is narrative (Leinhardt, Stainton, Virji, & Odoroff, 1994).

Levstik (1993) notes that the basic nature of history as narrative, can introduce children to history. She writes, "Narrative does more than allow a reader to look into other lives. It also shapes those lives and embeds them in a culture . . . [it] transforms chronology (a list of events) into history (an interpretation of events)" (p. 67). What makes a text coherent is that the events are not explained in an egalitarian way. Certain information needs to be made explicit in order for the reader to develop an adequate
explanation of an event. An example is in the introduction to *The Great Fire* (Murphy, 1995), where the reader is introduced to the individual survivors whose accounts of the fire are woven through the book. Murphy writes, “Many survivors wrote about their experiences . . . You will meet a number of the survivors . . . most of them only briefly . . . Finally, you will be able to follow four characters in great detail” (p. 11). In “particularizing” historical narrative, consequences of events and their implications can be demonstrated through the changes that happen to one person. For instance, in *Children of the Dustbowl* (Stanley, 1992), one child in a family learns to write and sends a letter to relatives in Oklahoma explaining that her father died from pneumonia. An account of life on the plains in *Pioneer Girl: Growing up on the Prairie* (Warren, 1998) is told through the eyes and voice of one woman and her family. The experience of one is a microcosm of the experience of many.

**Generalizations and supporting evidence.** Generalizations and their supporting facts are part of the ideational component of the text (Halliday & Hasan, 1976). Halliday and Hasan (1976) write, “The ideational component has two parts, the experiential and the logical, the former being more concerned with the presentation of experience, while the latter expresses the logical relations which derive from experience (p. 26). An example shows how the components work together. In *Children of the Dustbowl: The True Story of the School at Weedpatch Camp*, Stanley (1992) explains the feeling of rejection the people faced after they arrived in California. He generalizes in writing, “But the feeling of rejection was greatest among Okie children” (p. 39). He describes their being ignored by teachers, considered retarded, forced to sit on the floor, and referred to as scum of the earth.
Primary sources. Used to elaborate on ideas and information, as primary sources do in Children of the Dustbowl: The True Story of the School at Weedpatch Camp (Stanley, 1992), they contribute to a network of information that reinforces ideas (Beck, McKeown, Gromoll, 1989). Beck and her colleagues note that their use may not serve coherence when they create a change of topic or have no context in the stream of information. Primary sources in a coherent text elaborate on the content and give it nuanced detail. For instance, in the biography, Clara Schumann: Piano Virtuoso, Reich (1999) inserts a passage of Clara's diary to elaborate upon the mixture of joy and trepidation she feels at her impending marriage to Robert. The use of primary sources serves to situate the subject of the biography in the context of the important ideas of the text.

Contextualization. Anderson and Annbruster (1984) write that introductory material establishes a context that prepares readers to think about the central topic. In the introduction to his book Be Seated: A Book About Chairs, Giblin (1993) invites the reader's experiences with chairs in saying, "You probably have a favorite chair" (p. 3). He elaborates on the use of chairs. Then he asserts that not everyone in the world uses chairs and describes seating arrangements from around the world in the next three pages. In the first chapter of his book, Hurry Freedom, Stanley (2000) writes, "An informed person, like Mifflin Gibbs, knew that the West was extremely hostile toward African Americans" (p. 7). Information in the paragraphs that follow explain details that lead him to his understanding.

The author of a book can help readers see the relationships between the context of a series of events and events related to the author's topic. In Bound for America: The
Forced Migration of Africans to the New World, Haskins and Benson (1999) explain the kinds of slavery practiced in the western world and sketch the developments in Europe that were the context for the appetite for wealth and power that lead to the slave trade in the Western Hemisphere. They provide gravity for the development of slavery as a major factor in building empires.

Vocabulary. Beck, McKeown, Sinatra, and Loxterman (1991) note that unfamiliar terms can rupture coherence. Vocabulary understanding is a major predictor both of the speed of reading and the understanding from reading (Singer, 1994). Singer sees understanding as "interpretation, recognition of the central thought, and the integration of diverse ideas" (p. 904). An author cannot define every word in the text but signals words that are important in terms of the coherence and the overarching concepts that connect the information. For instance, in When Plague Strikes: The black plague, smallpox, AIDS, Giblin (1995) devotes a section of the first chapter to the discussion of the terms, virus, bacteria, epidemic, pandemic, and plague. He makes sure the reader has information about terms that he sees as critical in the text.

Vocabulary definition highlights the importance of certain concepts. A presentation by Josh Smith, a doctoral student at University of Maine, provides an example. He presented a paper at the history conference "'Every Student an Historian': Involving Students in the Practice of History," at the University of Maine, in October, 2000. Entitled "Murder on Isle au Haut" his topic was a particular event in Maine history concerning smuggling at the beginning of the nineteenth century and a murder that has been erased from historical accounts. Yet, at the time, it received press coverage throughout the northeast and involved the national, state, and local governments. Smith
opened the talk with definitions of the term “smuggler.” A smuggler might be a hero to some people, fishermen, lumberman, farmers, and a villain for others, the federal government, and businesses that have government or international contracts. Establishing a context for the term was critical for the coherence of the presentation exploring the historical question, “How do we make bad guys out of ordinary people?”

**Metadiscourse and author presence.** Crismore (1983, 1984b) describes the different kinds of metadiscourse an author uses to inform readers of the author’s certainty or uncertainty about the information she uses, to point out significance of information and events, and to separate fact from theory. An author’s presence is the interpersonal function of language (Halliday & Hasan, 1976). Halliday and Hasan write, “It is concerned with the expressive and conative functions of language, with expressing the speaker’s ‘angle’: his attitudes and judgments, his encoding of the role relationships in the situation, and his motive in saying anything at all” (p. 27). Whereas generalizations represent the ideational component of language, concerned with content, metadiscourse is concerned with the social function of the communication. The ideational component concerns the writer in his role as observer, “the interpersonal component represents the speaker in his role as intruder” (p. 27). Crismore (1984a) writes, “Metadiscourse calls attention to the communicative speech act itself and seeks to engage the reader as an active human being” (p. 9). For instance, at the end of the first chapter of his book *Children of the Dustbowl: The True Story of the School at Weedpatch Camp*, Stanley (1992) responds to the information in writing, “The Okies were broke, they were without land, and they were hungry. And still the wind blew day and night, scraping all life from
the earth. It’s little wonder that Okies named this period in their lives the Dirty Thirties” (p. 10).


This book tells the stories of three of the most serious and damaging plagues: the Black Death, which ravaged western Europe in the mid-1300's; smallpox, the only epidemic disease that has been wiped out completely; and AIDS, the modern plague whose mysteries remain to be solved. (p. 7)

Giblin forecasts the comparative study, but also alerts the reader to uncertainties and unsolved problems in the historical record.

In asking questions of the information, authors use metadiscourse. At the end of *What’s The Deal? Jefferson, Napoleon and the Louisiana Purchase*, Blumberg (1998) comments that the purchase was not inevitable. She writes, “The history of North America would have been different had Napoleon decided to keep Louisiana” (p. 116). And then Blumberg hypothesizes alternative outcomes. Authors disclose their doubts, their questions, their awareness of other perspectives, and their sense of great themes. Blumberg writes “Napoleon’s decision to sell Louisiana and President Jefferson’s decision to buy it shaped America’s destiny. . . . The purchase would transform the young United States from a weak nation into a great power” (p. 117).

**Perspective of the Investigator of this Study**

Making history relevant to students has been a major theme in historical discussions in the last thirty years (Nash, Crabtree, & Dunn, 1998). I was part of the
discussion and selected literature that helped make history relevant based on the idea that we need to feel kinship with the people we study. But that is a limited perspective.

Wineburg (1999) writes, “to realize history’s humanizing qualities, we need to encounter the distant past, in a sense, on its own terms” (p. 490). In reading historical documents, the question is how do we know what the words mean in the world in which they were created? The closer we can come to understanding differences, the closer we come to doing history.

Authors of nonfiction literature ponder the motivations and actions of the people they write about. In her biography, The Great Little Madison, Fritz (1989) wonders aloud why James made the decisions he did as a student in College. She ponders his choices and actions given the circumstances of the times in which he lived. Wineburg (1999) has referred to such questioning about circumstances of the past as cultivating puzzlement. “It is [one’s] ability to stand back from first impressions, to question quick leaps of mind, and to keep track of questions that together point in the direction of new learning” (p. 497). One puzzles over what one knows, and discovers the limitations of one’s certainty. Wineburg refers to this practice as learning to understand the other, whether the other is from the other side of town or from the other side of the century.

The contexts authors construct as they describe individuals and explain their actions create an image of an environment that is different from any current environment in which the author lives. Information is selected, interpreted from the mass of facts, but the author attempts to construct a context in which actions occur and in which historical documents are written. Talking about the connections between historical events and the lives of contemporary students engages them. But, according to Seixas, “students [are]
asked to see the difference and uniqueness of the past, not necessarily its relation to the present, particularly if its relation to the contentious contemporary issues clouded students' ability to understand what happened in the past” (p. 24). In taking a disciplinary perspective the focus is on how authors present information. Students of history (and authors of historical accounts) discuss the sources they use, corroborate one source with another, and contextualize their evidence (Britt, Rouet, Georgi, & Perfetti, 1994). These are tools for engaging the past.

Instead of seeing history as a codified body of information, the “single best story,” systematically gathered and organized (Loewen, 1995; Novick, 1988), from the disciplinary perspective we seek to understand the character of evidence upon which the account is based. Story and narrative have a major place in historical accounts (Cronon, 1992; Levstik, 1993) as do description and explanation (Megill, 1989), but a disciplinary perspective looks at the processes of constructing the story that has particular features germane to historiography, such as evidence of perspective, the context of the historical document, its corroboration or conflict with other sources.

Zarnowski (1995) argues that history embedded in story causes substantial problems for young students who do not have the context of historical information that experts have, that is, if children read history for the purpose of developing historical knowledge. Distinguishing between the story and the information is a major challenge for young readers. Zarnowski suggests that if books are to promote children’s understanding of history, the books they read “must show the role of argument and interpretation, how writers shape their material and develop a controlling idea. . . . In addition to providing compelling narrative, authors develop an original thesis” (p. 188). The disciplinary
perspective, takes as its starting point an understanding of what the experts do in constructing history (Leinhardt & Young, 1996; Wineburg, 1991a) and views young readers as apprentices of specialized knowledge (Levstik, 1998; Rogoff, 1990). Instead of putting documents in context, they create a context by making connections among the documents. Such a perspective changes the hierarchy of knowledge holders. According to Seixas (2001), disciplinary knowledge means that, instead of simply being told to believe the story, “students come to understand what makes a valid historical account, and in the process, learn criteria for deciding what makes good history” (p. 20).

History textbooks can perpetuate half truths or untruths as Kohl (1995) points out in his survey of eighteen text books recounting the story of Rosa Parks. Kohl notes that, by insisting that her keeping her seat on the bus was an isolated event of a tired woman, textbook developers ignore the truth that she was a leader of the community and a member of the NAACP. She and the Women’s Political Council had been preparing to confront the city’s racist policies since 1947. Kohl’s survey suggests that the development of an historical account is as much a cultural act as it is a political one. Being a critical reader is also being a reader who knows content in order to assess the completeness, or the slant, of the information as Kohl has done in his survey.

A disciplinary focus does not ignore the importance of developing content knowledge. In the balance between learning content and doing history, I tend to weigh the side of procedural knowledge, or how historical accounts are crafted more heavily than the content of accounts because procedures can be applied to the investigation of any content. The research literature in children’s understanding indicates a need for students to become more knowledgeable in how historians do their work and think about historical
evidence (Beck & McKeown, 1994; Downey & Levstik, 1991). As apprentices assessing historical accounts, they learn the “how” of constructing historical accounts as they learn the “what” of historical content (Brophy, VanSledright, & Bredin, 1992; VanSledright & Kelly, 1998). This study is not intended to suggest that books might replace excellent teaching. It is meant to show that nonfiction literature can show students how writers of historical accounts think and work like historians.

As I have read the Orbis Pictus books in the sample of this study and analyzed the passages, I found that I would go back and reread the passage and captions, then look forward in the text, piecing together how authors talk about their ideas. This process has been a kind of tinkering or what Papert (1995) has called bricolage, working with the resources at hand to understand the relationships of pages of text and captions. This process was most clear to me in studying how authors made and supported generalizations in their writing and “developed a controlling idea” (Zarnowski, 1995, p. 188). Authors state the major thesis or big idea first, as Jurmain (1989) does in Once Upon A Horse: A History of Horses and How They Shaped Our History. In her introduction she writes, “Although most people don’t realize it, one of the most important characters in human history had four legs, a mane, and a tail. . . . For six thousand years horses aided humans in changing the world” (p. 9). Authors will state their generalizations last, as Giblin (1993) does in Be Seated: A Book About Chairs. He writes that chairs “reveal many things abut their owners—their tastes, their values, their economic status” (p. 122). He restates a controlling idea that he introduced at the beginning just as Osofsky (1996) does in her biography of Free to Dream: The Making of a Poet: Langston Hughes. Authors embed smaller generalizations within larger ones as

Finally, in having a disciplinary perspective the student or writer of history reshapes the meaning of events and people’s actions. The student, or writer, asks, “What are we to make of this?” And they pose alternative outcomes, “The outcome might have been different” (Blumberg, 1998). From a disciplinary perspective, historical data is material to be sifted and resifted and is subject to reexamination, as though for the first time. Freedman (1999) points this out in his biography of Babe Dedrickson Zaharias, “My ideas about her had changed in twenty years.” In his earlier account he found her competitive but in his account of almost two decades later, he realized she was a complex person, who did and said things that would be more acceptable now than they were when she was young. In reading books that provide examples of a disciplinary perspective, students can see that authors craft and change their accounts, and that “what we understand of our history is what we understand of ourselves” (Myers, 1991, p. ix).

**Summary**

In this introduction the challenges of reading nonfiction have been sketched in broad strokes in relation to coherence, the interconnections of information and elaborating detail, and more specifically the coherence of historical nonfiction. Students shouldn’t be expected to read their nonfiction independently. Students are apprentices of historical reading and writing. Historical writing and thinking have discipline-specific conventions, that are part of the discourse community of historians. Coherent historical
content for children demonstrates the conventions that are distinctive of historical understanding. Reading books that demonstrate conventions of historical understanding shows them the interpretive, problem solving nature of historical interpretation and argument. Coherence does not work in the same way for all readers, background information and abundant connecting statements can get in the way of the construction of coherent text for knowledgeable readers. Yet for other readers, and for apprentice readers of historical text, the author’s presence in guiding readers and apprising their alternative interpretations, conflicting sources, and the reliability of the information, contributes to the construction of coherence.

Although history is a narrative, writers of engaging historical accounts do more than write a gripping story. They help readers understand how writers of historical accounts think. Through the author’s presence readers see what writers see. The study takes a disciplinary perspective on the examination of coherence in children’s nonfiction literature. Research questions concern the extent to which textual coherence, coherence germane to historical writing, or disciplinary coherence, and author presence, or the author’s voice, are present in a sample of books selected from the Orbis Pictus list.

The next chapter explains the definitions of the study. The general definitions for the study deal with the analysis. To answer the questions four research instruments have been designed to analyze content of the sample of the books. The specific definitions for each research instrument give examples from books to illustrate the categories. The categories have been derived from the research literature on coherence and the historical understanding of students and became the variables in the research instruments.
Chapter II

DEFINITION OF TERMS
FOR THE STUDY OF DISCIPLINARY COHERENCE

The purpose of the study is to discern through content analysis, the occurrence of disciplinary coherence in a sample of historical nonfiction and biography, written for children and selected from the Orbis Pictus list. The definition of terms are the foundation of the study. More than being a part of the background to the study, they are, at one and the same time, a result of the understanding about disciplinary coherence and a preview of the study itself. They are a midpoint between background and the study. They have been more than consistent and constant reference points throughout the study. They have been a reflection of the extent to which the meanings and justifications for them were clear, almost as though they have their own voice. They are so important as a guide to the inter-rater reliability study and to the analysis of the sample of Orbis Pictus books that they warrant their own stage. The definitions are characters that appear on the surface, dry and one dimensional. But here, examples from the books and the research literature illustrate how they are expressed through authors. Throughout the study, they have been companions and advisors at every step, guiding and focusing the analysis, and answering questions that arise during the reading of the books.

The chapter is organized in two sections. The first section concerns the general terms of the study and of content analysis in general. The second section concerns the definitions of the four research instruments. The variables in the research instruments were designed to measure the characteristics of coherence that are addressed in the research questions.
Historical nonfiction literature for children. Historical nonfiction is the genre of children's literature that provides accounts of historical events, involving people, what happened to them as well as their actions, the explanation for the occurrence of the events, and their significance and consequences. The events and people are placed in a time and a place. The accounts are written from the perspective of the author sifting evidence to present an interpretation that addresses a significant question of human experience. This literature is appropriate for children at some age from early elementary school age through middle school.

Content analysis. This is a research technique for making replicable inferences by objectively and systematically identifying specified characteristics of communication (Berelson, 1971; Carney, 1972; Krippendorff, 1980). In this study the communication is children's historical nonfiction selected from the Orbis Pictus Award List of books. The specified characteristics of content analysis are certain aspects of coherence related to historical thinking and learning: causal explanations, explanation of vocabulary, the presence of metadiscourse, the integration of primary sources, discussion of alternative interpretations, the author's perspective, assessment of source reliability, and resolution of conflicting sources.

Orbis Pictus list. Each year the Orbis Pictus Committee of the National Council of Teachers of English chooses a selection of children's nonfiction trade books they judge to be excellent. The committee chooses a winner, honor, and notable books from the body of books published in the preceding year. The term, Orbis Pictus, comes from the title of

The choices of the Orbis Pictus Committee are based on four criteria: Accuracy, organization, design, and style. To be considered accurate, the information in the book is current and complete; it has a balance of theory and fact; viewpoints are varied and stereotypes are avoided; the author’s qualifications are considered adequate; and detail is authentic and appropriate for the content and the audience for which the book is intended (Bamford & Kristo, 2000). In terms of organization, the sequence and interrelationships of the content are clear. Patterns are provided; that is, they are “general to specific, simple to complex” (p. 139). Content has a logical development with clear sequence. In terms of design the book is attractive, the illustrations and placement of illustrative material supplement the text, their relationships to the text are clear, and the format, type, and media are appropriate. Excellent style means the writing is engaging; leads and summative statements are clearly connected to, and supported by, the text; the language is rich and appropriate. It reveals the author’s attitude toward the content and topic and stimulates curiosity (Bamford & Kristo, 2000).

**Coding unit.** A coding unit is the smallest segment of content counted and scored in content analysis. In this study are three types of coding units: assertion, item, and the space. An assertion is a single thought unit or idea unit that conveys a single item of information extracted from a segment of content (Carney, 1972). In this study the assertion coding units are the author’s perspective, generalizations, and author’s comment on source reliability and conflicting sources, and alternative interpretations. In this study the four item units are the vocabulary, metadiscourse, causal explanations, and
integration of primary sources. The space unit is coded by identifying the paragraph, page, or pages, which contained the assertion or item units.

The smallest coding unit, or the specific segment of content in a category, is the word or symbol. A word, as the single coding unit, does not allow for the analysis of sentences related to overall generalizations, or longer explanations, of a passage. The entire book as the coding unit is considered the least reliable coding unit but “when used in conjunction with well-formulated categories that permit reliable judgments about major attributes of the book, item analysis can provide interesting results” (Holsti, 1969, p. 117).

Where items or assertions can be coded in more than one category, they can be coded only once. They are to be coded where they are most generalizable and where they are value added. That is, items and assertions are coded where they will provide the most information about the passage, the book, and the author’s writing. For instance, a passage contain a salient reference to a most important fact of a biography. It could be coded as salience in attitudinal metadiscourse. The passage might be a causal explanation such as, “Because of these two documents, we know more about her than any other woman before modern times” (Stanley, 1998, unpaged). The salience is that we know more about her than any other woman, but the statement is also a causal connection to historical research and documents. In this case, the value added coding is causal explanation.

**Context unit.** The context unit is the body of material surrounding the coding unit required to characterize it. A context unit, the larger unit of what goes with what, is in the range of 120-200 words (Carney, 1972, p. 144). The most well-known difficulties
concern the best size for context units. If a small span of context is chosen, then many co-occurrences are left out. If too large a span is chosen then almost anything can be said to co-occur with anything else. In the current study, the context unit was the text around the particular statement that was coded.

Criteria of selection. The books are selected from the Orbis Pictus List of award winners and honor books. To be selected they have been designated by the Library of Congress as juvenile literature, history, or juvenile literature, biography. The designation appears on the verso page of the book.

Sample. The sample of books is a stratified selection of books from the Orbis Pictus list that meet the criteria of historical nonfiction and biography. The stratification has four layers. First, the stratification means that equitable numbers of biographies and historical nonfiction are chosen representing in an equitable number of picture book and longer books throughout the twelve years the Orbis Pictus has been awarded. Second, a further stratification of selection is that books will be chosen representing two chronological periods, from 1989 through 1994 and from 1994 to the present. Third, in the stratification, books ninety pages or less and books more than 90 pages are selected. And fourth, in the category of books more than ninety pages, two additional categories are books that are 150 pages or less and books that are more than 150 pages.

Sampling. This is the process of coding the designated passages from a book.

Passage. The passage refers to the amount of text that is to be included in the sample of each book. Each passage represents a part of the book that has integrity, that is, the passage is presented as coherent. The middle passage begins with a new idea or a new chapter; that is, the passage will not be designated in a mechanistic manner as the
precise middle of the book. The middle passage contains the middle of the running text. Each passage is an equal proportion of the total number of words in the running text of the book. The proportion of words to be coded to the book's total number of words is based on a one to three ratio. This ratio accommodates the range of differences in length of running text, from a picture book of 8000 or so words, to longer books of multiple chapters of more than 25,000 words.

The beginning and end are considered important in determining the passages because, in nonfiction, the author presents information that establishes a purpose for writing the book and a perspective. The author provides information, such as generalizations, that will be referred to and supported throughout the book. The material at the beginning and end can contribute to global coherence (Anderson & Armbruster, 1984). The end provides additional information that contributes to coherence. For instance, the chapter outline in the reference list of Be Seated: A Book about Chairs (Giblin, 1993) summarizes the topics of each of the chapters. Giblin discusses the origins and reliability of the sources.

Sampling from the middle presumes that, not only is the section coherent in itself, but the characteristics of coherence that span the length of the book thread through the middle chapters (cf. Giblin, 1993; Murphy, 1995; Myers, 1991).

Categories. Categories are compartments with explicitly defined boundaries into which material is grouped for analysis. The categories in this study will reflect the purposes of the research, be exhaustive, and be mutually exclusive and independent.

They are vocabulary; metadiscourse and perspective; causal explanations, illustrations and captions that explain causal explanations; generalizations, illustrations
and captions that support generalizations; discussion of source reliability, conflicting sources, and alternative interpretations; and the integration of primary resources.

**Illustrations.** As a variable illustrations include the visuals in the book. These are photographs, prints (such as lithograph and monograph prints), drawings, portraits, newspaper columns, diagrams, and maps. In considering illustrations as a contribution to coherence, certain qualities are considered. For instance, in maps, adjacent countries are different colors to make the maps more easily read. The names of rivers, cities, towns, mountains and other features are repeated in the running text. The maps have legends that provide distance and a sense of scale.

Illustrations can elaborate on information of the running text, or present new information. They can be adjacent to the information they are meant to illustrate, such as being on the same page, or on the facing page, or they can be distant from the text they are meant to illustrate. For each passage the total number of illustrations will be recorded in order to have a proportion between the number of illustrations and the number that contributes to coherence. Where they are adjacent to the running text, either by being on the same page, or on the facing page of the text they represent, they can be coded as elaborating on or as presenting new information. In this study, illustrations will be coded for elaborating on vocabulary, causal explanations, or generalizations. Illustrations will be coded once, for one of the categories, as is the convention in content analysis.

**Captions.** These represent the text describing or explaining illustrations. Their presence is noted for each passage. Then they are coded for their relationship to the running text. They are coded for content rather than for quality of type face. Captions are coded in one of three ways. They can elaborate on information, they can restate the
running text, or they can provide different information. Captions are analyzed in relation to three categories in the research instruments: vocabulary, causal explanations, and generalizations. Where they contribute to coherence by being adjacent to the running text and illustrations they represent, they are coded with a plus.

To be coded as different information, the caption has a preponderance of information that is different from any terms or information in the text. The caption introduces new words and facts not already presented more than it repeats or explains words and information already presented. Captions may restate information in the text and they may do more, elaborating on information or adding new information that is related to terms or content. For instance, in *Bound for America*, Haskins and Benson (1999) have a caption to an illustration of one deck of a loaded slave ship. The caption mentions that a ship could carry 409 people, and makes reference to abolitionists who said ships were known to carry 619. The two figures and reference to abolitionists is elaborative information on the configuration of the ships and the inhumane conditions of the tightly packed decks.

**Coders and raters.** These are the individuals who applied the research instruments to the selected books of historical nonfiction literature.

**Research instruments.** The four instruments refer to the research tools used in the study to record data. The first one is the Contextualization Research Instrument used to analyze the occurrence of vocabulary definitions and metadiscourse in the book. The second instrument is the Domain Knowledge Research Instrument used to analyze characteristics of historical thinking: The evidence of the author's perspective, generalizations and supporting evidence, assessment of the reliability of primary sources,
resolution of conflicting sources, presentation of alternative interpretations, reference to
tsocio-cultural identification of individuals in the account, and visuals and captions that
illustrate or explain the generalizations. The third instrument is the Interrelationships
Research Instrument used to analyze causal explanations in the historical account of the
book. The fourth one is the Integration of Primary Sources Research Instrument used to
analyze the integration of primary sources in the book.

The following definitions of the terms in the four research instruments are
described with examples.

**Terms in the Four Research Instruments**

**Contextualization research instrument terms.** The following definitions concern
the variables in the research instrument to measure contextualization, vocabulary and
metadiscourse.

1. **Vocabulary:** The author designates certain words and phrases in the text to be
defined. Not all words that have multiple meanings are necessarily defined, but the author
sets out to explicitly define certain terms. The author may be explicit in saying a word is
"defined as" a word "means." The author may set target words terms off in bold or italics,
and may include a definition or meaning in a parenthetical phrase. Definitions are also
contextual; that is, they are embedded in the text, in phrases, sentences, or longer
passages. Definitions are given in terms of semantic processing (Sternberg & Powell,
1983), describing attributes and explaining functions of the term, and suggesting
categories to which the term belongs.
In this study, definitions can have six positions: adjacent, distant, sidebars and inserted boxes, highlighted/glossary, and glossary. The definitions can be of three forms: contrast, synonym, and inference (Carnine, Kameenui, & Coyle, 1984).

a. Position of vocabulary explanations:
   i. **Adjacent**: The definitions are next to the term, or in the next sentence.
   
   ii. **Distant**: When definitions are more than a sentence from the target word or term, but within the text, they are classified as distant.

   iii. **Sidebars and inserted boxes**: These definitions can be adjacent to the word, or term, or distant, and are coded separately as sidebars or inserted boxes.

   iv. **Highlighted**: Highlighted words are printed in bold or italics and their definitions are in parenthetical statements in the text.

   v. **Highlighted/Glossary**: Terms that are highlighted, and not defined in the text, but in the glossary are coded in the Highlighted/Glossary category.

   vi. **Glossary**: Terms that are in the glossary and not highlighted in the body of the text are coded as glossary.

b. Form of vocabulary explanations: In any position the definition can be classified as a contrast with another term, a synonym for another term, or an inference (Carnine, Kameenui, Coyle, 1984).

   i. **Contrast**: This is an antonym or is an antonym preceded by the word “not.” For instance, Frigid weather is deleterious to one’s health.
(The term is deleterious.) One contrast is: Frigid weather certainly is not good for one's health.

ii. **Synonym:** A synonymous definition provides essentially the same meaning as the word or term to be defined. Using the same term as in the example above, a synonymous definition is: Frigid weather can be harmful to one's health.

iii. **Inference:** An inference is a relationship of words that invites a deduction. With reference to the example from above, on frigid weather, an inferential definition comes from *Snowflake Bentley* (Martin, 1998). After walking six miles in a blizzard, "He became ill with pneumonia and died two weeks later" (unpaged). Such definitions give attributes, functions, of the term, and criteria for the term's occurrence. For instance, at the beginning of *Bound for America: The Forced Migration of Africans to the New World*, Haskins and Benson (1999) explain that a person became a slave historically either by incurring debt or by being a prisoner of war.

2. **Metadiscourse:** Metadiscourse is the authorial commentary on the content. It is the interpersonal semantic component of the communication (Halliday & Hasan, 1976), used to convey author attitudes and comments, and "signals the overt or covert presence of the author" (Crismore, 1984a, p. 9). It expresses attitudes and judgments, encoding of the role relationships in the situation, and motive in saying anything at all. It includes pronouns for self-reference or reader reference (I, you, and the imperative you); mental states and process verbs (feel, think, imagine, realize, know, conclude, argue); and
adverbs or adverbial constructions that qualify the whole sentence, rather than a part of
the sentence (it is true that, probably, naturally, perhaps, certainly). The self-reference or
reader reference and mental or process verbs can be found in different categories of
metadiscourse. That is, they are not exclusive to evaluative or hedging metadiscourse (see
below).

Authors can use vivid, suggestive, and graphic verbs and adjectives in writing
propositions, such as “wonderful machine,” “magical development,” and “magnificent
invention,” that indicate attitude toward the content. Certain verbs and nouns such as
“plundered the family’s treasures,” or “Boston Massacre,” have different connotations
and give different messages than “took their things,” or “Boston Skirmish.” In this study,
these forms of expression are not coded as metadiscourse because controlling for
objectivity becomes nearly impossible in the reliability study. Judging the evaluative
nature of certain uses of terms becomes a function of the observer’s perspective on the
content and prior knowledge about the topic.

In this study metadiscourse has two functions: To provide referential information
about the content or structure of the text and to express the author’s stance toward the
content or structure (Crismore, 1984b). The two functions comprise the subcategories of
metadiscourse: Informational and Attitudinal. Examples of metadiscourse in this section
come from two sources. They come from specific authors of children’s historical
nonfiction and they come from Crismore’s (1983, 1984b) analyses of metadiscourse in a
selection of textbooks and trade books. The text books in her study were written for
students in elementary school through college levels, and the trade books were published
largely for the adult population.
a. **Informational metadiscourse:** When the author uses informational metadiscourse information is given about the purpose, organization, and structure of the text to aid the reader. Goals, the topic or subject matter, the main assertions, and the sequence of the text, its organization, or its discourse type are all explained. Informational metadiscourse can be classified into four categories: Goals, Preplans, Postplans, and Topicalizers.

i. **Goals:** The Goals are statements that occur both as preliminary statements, looking forward to what is coming in the passage, chapter, or book, and as review statements, looking back to what has preceded (Crismore, 1983). Goal statements can occur at the global as well as local levels; that is, they can address the author’s goal for the entire book or a section within it.

Preliminary goal statements are the following: “The purpose of this unit is to enrich the way readers think about Native Americans”; and, “Our goal is to understand how the preferences of people are communicated to those who make decisions” (Crismore, 1983, p. 13). “I hope to seize upon a single strand woven into our past . . .”; and, “These essays seek to explain . . .” (Crismore, 1984b, p. 286).

A review goal statement is the following: “We have in this book attempted to pursue two goals. . .” (Crismore, 1983, p. 13).

ii. **Preplan:** The Preplan signals the topic, content, or structure of the coming text; e.g., “This chapter is about the journey across the Isthmus.” Or, “In this chapter, you will read [learn, find out, hear]
(Crismore, 1984b) about how Gibbs started his business." Crismore notes a third type of preplan that indicates the topic and text sequence. "In this description, divided into eight parts, events will raise questions . . ." and "After reviewing sixteenth century urbanization, we will discuss topics such as class structure . . ." (p. 288). Crismore offers other preplans: "The first unit uses materials from the earliest part of the nation's history" (p. 288); "We consider two general political processes"; "Our main concern is with participation . . ."; "I shall touch upon broken homes, interruptions of a familiar life . . ."; and "These are the interlocking themes of this collection of essays" (p. 288). Finally two more examples that indicate what is coming: "That chance came along in the form of a kind man who was standing in a field of dirt . . ." (Stanley, 1992, p. 39). "It was slow but he never lost an inch that he gained" (Conrad, 1991, p. 72).

iii. Postplan: The Postplan signals synopsis of what has come before; e.g., "We have seen that the knife was originally used for . . ." (Giblin, 1992, p. 8). Crismore (1984b) writes, "We have suggested [argued, pointed out] the harsh conditions of the passage . . ." (p. 283). In another form of postplan, the author uses the second person, "You have heard about . . ." Crismore (1983) suggests other signal terms for postplans: "We have looked so far in this chapter at the history of one tribe." Or, "We have argued earlier that the arrival of the Europeans destroyed . . ." and, "Remember that farms were the main way of making a living then" (p. 13). Postplans can be presented in second person, such as,
iv. **Topicalizers**: The topicalizers signal a change in topic that is not otherwise marked by headings and titles. For instance: There was other evidence of growing prosperity among the people who provided services for the gold miners (Stanley, 2000). Topicalizers can be written in first person: “Let us look at another example of . . .”, “Let us now turn to participation in Vietnam,” or “Now that we have the story, what are we to make of it?” (Stanley, 1998, unpaged). They can mark a change of topic or new information in a phrase such as, “In the same way,” to note a difference or a comparison. Crismore (1983) mentions other topicalizers: “So far as strategic planning was concerned. . .”; or, “As far as the condition of the soldiers is concerned . . .”, and, “Here is an article by a Chicago newspaperman where he clearly says what he thinks about democracy” (p. 13).

Questions the author poses in the text can mark a new topic, such as, “What are we to make of this?” or, “How are we to make sense of the message?”

b. **Attitudinal metadiscourse**: In **Attitudinal** metadiscourse the author signals her attitude toward the content or structure of the text and toward the reader (Crismore, 1983, p. 13). She gives directives about the salience of information, the degree to which she is certain or not certain about the
information, her feelings toward the information, and the distance she puts between herself and the reader.

Attitudinal metadiscourse can be classified in four types: Salience, Emphatics, Hedges, and Evaluation.

i. **Salience**: In statements of salience the author signals the importance of information. Examples are: “Still more important”; or, “Equally important”; and, “The most crucial component is economics” (Crismore, 1983, p. 14). It also notes primacy of information, such as in the sentence, “We know more about her than any other woman” (Stanley, 1998, unpaged). Other occurrences of salience are the following: “The most fundamental characteristic of Theodore Roosevelt was his aggression”; and, “The Americans’ sense of pride and confidence, but above all, their pragmatism . . .” (Crismore, 1984b, p. 291).

ii. **Emphatics**: The author’s emphatic statements signal the author’s certainty about the information. The statements can be expressed as words or phrases. Crismore (1983) provides examples of emphatics: “Of course”; “It is true”; “Indeed”; “Certainly”; and, “In fact.” An example of a phrase is, “As you would expect . . .” (Crismore, 1984b, p. 292).

iii. **Hedges**: Hedging statements signal uncertainty, ponderings, wonderings, or doubt about the information, expressed as words such as, probably, perhaps, might, may, appears, generally, almost, occasionally, not sure. Hedges are “words that work to make things fuzzier” (Crismore, 1984a, p. 12), in such phrases as, “Historians are not certain . . .,” “It
seems to me that . . .”, or “It is estimated that . . .” and “Historians estimate . . .”. Hedges signal conjecture, question, and wondering. Authors hedge the reading of documents, “The transcript can be read as . . .” instead of suggesting explicitly other perspectives or alternative interpretations.

In making hedging comments authors can refer to what someone else has thought about the information, such as in the phrase, “They had thought they had found a route . . .” or, “To some it seemed that the winter lasted forever” (Crismore, 1984b, p. 293).

Authors can do the hedging themselves such as in the phrases, “There might have been fur traders before this . . .”, “We suggest that, unwittingly, the king . . .”, (Crismore, 1984b, p. 293) or, “It would seem that . . .”

A hedge can occur next to an emphatic and used in conjunction with words such as “but,” to establish an argument. For example, “Such solutions are the handiest, and may, of course, be the best, but may, occasionally be the worst in a different context” (Crismore, 1984b, p. 293). Or, “Indeed, possibly through seeing her and certainly through hearing about her, she worked on James’s imagination . . .” (Fritz, 1989, p. 70).

iv. Evaluation: In using evaluation, or what is called evaluative metadiscourse in this study, the author comments on the content with words such as “Fortunately,” or, “Unfortunately,” or, “Luckily.” It can be
expressed in phrases, such as, “Astonishing as the gossip was,” “Oddly enough,” and, “It is interesting to note that . . .” Crismore (1984b) gives other examples. “The great dividing force was, ironically, in the principal rather than the teachers.” “Given these differences, it is not surprising that . . .”. “It is paradoxically so much a part of his virtues . . .” Stanley (1992) provides an example. He writes, “It’s little wonder that Okies named this period in their lives the Dirty Thirties” (p. 10).

Evaluative metadiscourse can have an intensifying effect in that it points to and strengthens the proposition being expressed, such as “I’ll tell you . . .” “Just imagine . . .,” or, “Finally, for the second time, he announced his decision.” The term “finally” is used in this instance to intensify the feeling of at last, rather than to mark a listing of items. Crismore (1984a) writes, “such intensification is a form of evaluation and a means of indicating the speakers’ attitude toward what he is saying” (p. 12).

Evaluative statements display a change in the speaker’s alignment in relation to themselves. Crismore (1984a) writes that when a speaker comments on her own talk, she is “projected as an animator” (p. 13). Evaluative metadiscourse signals intensity of response in expletives, such as, “What a glorious event.”

3. Illustrations related to vocabulary: Illustrations can contribute to the understanding of vocabulary. For instance, in Be Seated: A Book About Chairs (Giblin, 1993), a photograph of a Windsor chair is adjacent to text that gives its definition and
attributes. On the facing page is an illustration of members at the Second Continental Congress sitting in Windsor chairs, their backs to the reader, and they deliberate with other members standing near them (p. 65). Illustrations and other visuals that explain or elaborate on explanations of vocabulary and that are adjacent to the vocabulary term are coded with a plus.

Where illustrations, pertinent to the vocabulary the author explains, are on other pages distant from the term, they are coded as a minus. For instance, in Be Seated: A Book About Chairs, Giblin defines tatami, and on the following page is an illustration of a group of women presumably sitting on tatami mats.

4. Captions: Captions for illustrations may contribute to coherence by restating the term the author defines in the running text. Giblin (1993) describes the immense popularity of the Windsor chair in the United States of the late eighteenth century and mentions their extensive use in the sessions of the Continental Congress. In the illustration on the facing page, the caption repeats the word, Windsor chairs, and the explanation of the running text. Where captions are adjacent to the running text in each of the three passages they are coded in one of three ways: They elaborate on, or restate the information, or they present new information.

Domain knowledge research instrument terms. The following definitions for the variables in this instrument measure domain knowledge, author perspective, generalizations and supporting information, discussion of source reliability, conflicting sources, and alternative interpretations, and socio-cultural identification. Illustrations and captions are coded as they relate to the content related to domain knowledge.
1. **Author perspective**: The perspective is the explicit statement the author gives as her or his background for writing the book, approach to the book topic, its content, or its information, or comment of how the author became personally involved in the topic and the writing of the book. It is a statement of motivation, purpose, background, the author's personal statement about the purpose for writing, or the author's initial position in writing the book. It is distinguished from a goal statement in that it concerns the precedent thinking or feeling of the author and not the substance or form of the content. Perspective is a global reference to the writing of the book and the general topic, rather than to commentary on particular information.

The author's perspective can appear in any or all of three places in the text: In the introduction, in the author notes, and in the body of the text. Although dust jackets contain information that might suggest perspective, the author of this text is not necessarily the same as the author of the body of the book. In the study, presence of front matter in books, such as introductions and prefaces is coded as well as evidence of the author's perspective.

2. **Level of generalizations and facts**: The generalization and its facts can be within a paragraph, include the whole page, across pages, or across the whole book, woven through the chapters. Several generalizations at the end of *Be Seated: A Book About Chairs* (Giblin, 1993) have supporting facts that thread through the chapters. A generalization that has supporting facts through the book is coded in a separate variable. In other words, an author may make a generalization at the end of the book that appears to be unsupported, since no facts precede or follow it. But on closer examination of the text as a whole, the author has mentioned the generalization elsewhere, especially in a
beginning section, and has provided information that supports the generalization through
the chapters of the book, as Giblin as done in Be Seated: A Book About Chairs.

3. **Textual generalizations:** Textual Generalizations are assertions, that is, they are
the warrants of arguments. They are based on networks of concepts and facts (Brophy,
1992, p. 408). Generalizations represent networks of knowledge. They may be construed
as complex wholes with any parts, or as categories of actions or outcomes (Schemilt,
2000). An example of a generalization is a passage “on ‘shelter,’” that “people in different
places live in different kinds of houses, in part, because of the climate and the natural
resources of the region” (p. 408). A generalization is a statement about relationships
between or among concepts that is true or verified for all cases on the basis of the best
evidence available (Benson, 1998; Marterolla, 2001; Parker, 2001). Parker writes, “The
generalization, ‘The decisions of human beings influence the survival of other living
things,’ links concepts together: decisions, human beings, influence, survival, and living
things” (p. 417). Zarillo (2000) focuses on the relation of a generalization and the
evidence when he writes, “Generalizations are content-specific statements based on . . .
factual content” (p. 19). He notes that readers may need assistance in formulating
generalizations and gives an example of one the teacher introduces and the children
complete. Zarillo writes “If you want to get someplace in a hurry, then you will . . .” (p.
149). Presumably the modes of transport that are fast are verifiable facts of time and
distance.

Zarnowski (1998a) conceives of generalizations as powerful ideas that provide
young readers with a framework for assimilating new information. They can be used as
means for readers to question themselves, their knowledge, and their experience.
Zarnowski (1998b) discusses an example of an overarching generalization in *Be Seated: A Book About Chairs* (Giblin, 1993). At the end of his book, Giblin writes that, besides demonstrating a person's power or rank, chairs "reveal many things about the owners—tastes, values, economic status" (p. 122). With reference to the generalization, Zarnowski (1998b) writes, "Even simple belongings help define us and those who came before us" (p. 95). Giblin's generalization provides an opportunity for readers to think about their knowledge and experience in the context of new information, or idea, that an author presents and then supports with evidence. In *Be Seated: A Book About Chairs*, Giblin discusses the role of chairs through history such as, the golden stool of the Ashanti in Africa. He explains the origins of the term "chairman," and shows examples of the particular, specialized chair giving people the position that demonstrated the authority of chairman.

Baumann (1986) provides examples of generalizations in rewriting textbooks. The examples are statements that demonstrate relationships between or among concepts that is true for all cases on the basis of the best evidence available. In a passage of about cells Baumann writes, "Cells are the building blocks of all organisms, or living things" (p. 8). The concepts are building blocks, organisms, living things. "Cells carry on the same activities as larger organisms" (p. 9). The concepts in this statement are activities and organisms. Each of these statements is supported with facts about the way the body works, comparing function inside cells with the functions of the organism.

Generalizations that can be coded in this study are explicit in the text. The objectivity of coding generalizations that are implicit cannot be controlled. For instance, in her book, *Joan of Arc*, Stanley (1998) discusses how the French high command
disregarded her and the English demonstrated disrespect along with their disregard. The
book has levels of generalizations, some explicit as is the one in *Joan of Arc* pertaining to
the disregard of the military commanders, and some implicit, such as, an overall message
of the book regarding war. An implicit generalization may be that the book is against
war, or that, in celebrating heroism, we celebrate fighting for a great cause. These kinds
of generalizations are on a high level, they are implicit, and depend on the reader’s
perspective and experience. Although they are valid, they are implicit and are not coded.

A generalization may be made in the text and not have supporting evidence, facts,
logical arguments, or appeal to other authority structured around it. A generalization with
no supporting facts is coded with a minus. An example comes from *Bound for America:
the Forced Migration of Africans to the New World* (Haskins and Benson, 1999). The
authors write, “People in those areas of the world believed that slavery was part of the
natural order” (p. 4).

A generalization with supporting facts or concepts is coded as a plus. An
example of a generalization comes from *Children of the Dustbowl: The True
Story of the School at Weedpatch Camp* (Stanley, 1992). In the chapter, “Okies,
Go Home!” Stanley writes, “But the feeling of rejection was greatest among Okie
children” (p. 38). The generalization is that the children suffered most from the
ostracism the community Okies encountered daily. In the following paragraphs
Stanley gives the supporting evidence, which includes a description of the
treatment of the Okie children in school, one child’s poem, and an interview of
the father of children in the local school where children went before their own
school was established. Generalizations may appear before or after the related
facts, or appear in their midst. A generalization is signaled by the presence of a cluster of facts that support and illustrate it. If a generalization contains a descriptor, such as, “in the middle ages . . .,” it is coded as a textual generalization.

4. Historical generalizations. These are generalizations that deal with questions and issues of history and historical thinking. For instance, in *Now Is Your Time: The African-American Struggle for Freedom*, Myers (1991) writes in the Introduction, “Events of the past cannot change, but they can change in our perception of them, and in our understanding of what they mean to us today. What we understand of our history is what we understand of ourselves” (p. ix). His generalization concerns the role of history in people’s perceptions of themselves and the influence of their perceptions of themselves on their understanding of history. Later in the book, Myers responds to his question “What makes an event outstanding?” (p. 117). He writes, “Sometimes it is the effect of what happens; sometimes it is the people who are involved; sometimes it is what people are thinking about when the event occurs” (p. 117). His generalization concerns the character of historical thinking and how people construct meaning of events.

An historical generalization can be made across time, place, and situation. Where an author makes a generalization that pertains to one period it is not coded as an historical generalization. For instance, the generalization that during the middle ages violence was an everyday occurrence for the people in towns and cities is coded as a textual generalization rather than an historical one.

Martorella (2001) provides samples of generalizations and related facts. One generalization is, “Throughout history, cultures have borrowed from each other” (p. 199).
The related fact is, "In Tokyo, you can find many examples of Americana, ranging from McDonald's to Disney World" (p. 199). Conceptualizing from multiple theories in looking at evidence and making connections among them is an historical generalization. For instance, in her book Joan of Arc, Stanley (1998) poses the question pursuant to knowing about Joan's life. Stanley asks what are readers to make of the story of Joan's life? That is, Stanley asks what meaning can we make or what generalizations can we draw? Stanley then gives three theories for conceptualizing and drawing conclusions from the information. Of the theories she says that we can't know for sure and concludes, "Sometimes in studying history, we have to accept what we know and let the rest remain a mystery" (unpaged). In this instance, the historical generalization is that some things we can't know even after considering multiple perspectives and different theories regarding a person's life.

5. **Number of facts**: Facts are the discrete units of supporting evidence for the generalization. Statistics, narrative, description, explanation, primary sources of diaries, and interviews are sources for facts and concepts that support the generalization. Martorella (2001) defines and illustrates a fact. "It is a statement about concepts that is true or verified for a particular case on the basis of the best evidence available" (p. 197). In considering a concept cluster that includes, law, court trial, and drunk driving, Martorella makes a fact statement relating them together in the following: "In 1988, the North Carolina state courts conducted 132 trials involving drunken driving charges" (p. 197).

6. **Length of facts**: This term refers to the length of the passage containing the facts. Elaborative or descriptive material for the fact is noted on the coding sheet but is
not included in the word count. For instance, in her book, Clara Schumann: Piano Virtuoso, Reich (1999) discusses the early days of Clara’s marriage to Robert as being a continuation of her life from before her marriage. Reich describes the roles Clara had, and the work she did. Reich emphasizes her point, “While another female musician might have been content to retire to a life of house keeping and child rearing, Clara Schumann had no such thought” (p. 48). The length of the fact, the roles Clara had, includes the elaborative information concerning what other performers might have done. The word count of the length of fact is limited to the sentences with the fact, or facts, because with elaborative sentences, the extent of the supporting facts can have the same length as the context unit and inflates the number of words that support the generalizations.

7. Structure of facts: Supporting facts can have the following structures:

Description, explanation, narrative (Megill, 1989). In her book, Clara Schumann: Piano Virtuoso, Reich (1999) writes of the early days of Clara’s marriage to Robert in her generalization, “For Robert, marriage to the famous Clara was not easy” (p. 52). Then Reich clarifies how life with Clara was not easy. She explains that when he traveled with Clara he could not write and felt snubbed when she was invited to parties without him. The weather in Russia was cold and he was sick. In this short passage, the author has included three, discrete facts as she explains how life with Clara was not easy.

Following are structures that facts coded in the domain knowledge research instrument have: Explanation/description, narrative, other. In this study, explanation and description are combined. Where supporting facts are in the form of primary sources or explicit causal explanations, they are coded separately. This is discussed below.
a. An explanation defines, qualifies, clarifies, accounts for, or expounds upon a generalization, gives reasons for, or causes of, a generalization, and is related to action or activities. The causal connection is implicit or explicit (see below for coding of explicit causal connections). In Bound for America: The Forced Migration of Africans to the New World, Haskins and Benson (1999) explain their generalization that the treatment of slaves and their rights, if any, varied with the culture and the times. The authors write, “...In some cultures, slaves could be imprisoned in place of their owners or buried with them when they died. In others, slaves could themselves own slaves...” (p. 4).

b. A description is separate from these first two categories and provides a sensory experience, visual or auditory of a person, event, or idea. The description is meant to transmit a mental image or impression of the generalization. An example comes from Bound for America, where Haskins and Benson (1999) support the generalization, “Slave traders usually purchased the captives with European goods” (p. 24). The authors write that African men were worth one hundred fifteen gallons of rum; women, fifty gallons. They parphrase a physician who wrote in his journal that a slave boy had a price of seven fifty-punt kettles, five pieces of brawls (a kind of cloth), one piece of ramal (soft leather, and one bar of iron. The authors describe the various European goods used to purchase the captives.

c. A narrative recounts an illustrative story or a piece of a story that supports the generalization.
d. The category, other, refers to additional structures of facts, such as, appeal to authority and logical argument.

e. Where the evidence for the generalization is in the form of causal explanation or is reference to a primary source, it is coded separately in the respective instruments for causal explanations and primary sources. In each instrument is a column to code explanations and sources used in support of generalizations.

8. **Discussion of source reliability.** The author makes explicit comment on the reliability of a source.

9. **Discussion of conflicting sources.** The author makes explicit comment about conflicting evidence. These comments can be in any or all of three places. They can be made in introductory material to the book or to the section; they can be in a separate section on author notes or references; they can be found in the running text relating to specific references in a passage. In the running text, the author might make reference to other perspectives, such as in the phrase, “Others explained it differently” (Stanley, 1998, unpaged), which would be coded as conflicting sources.

Discussion of conflicting sources is to be distinguished from historical generalizations that address problems and questions of historical research. Conflicting sources pertain to the relationships among particular pieces of information within the text than questions of research and theory. The discussion notes differences among specific information and documents. These are coded in the category, comment on conflicting sources. “Others explained the hanging differently,” is an example. Historical generalizations are “big ideas” of historical relevance. They are generalizable statements
about documents, sources, and the process of doing research. An example of an historical generalization that appears like a comment on conflicting sources comes at the end of Joan of Arc (Stanley, 1998) where the author writes, “To this day, however, no historian has been able to do more than spin the occasional theory. Sometimes, in studying history, we have to accept what we know and let the rest remain a mystery” (unpaged). This statement of historical relevance is related to other generalizations in its focus on the general body of material from which generalizations are made.

10. Discussion of alternative interpretations. The author states explicitly alternatives to ways of looking at the evidence, alternative hypotheses, or “what if” statements. Discussion of alternative interpretations means the author takes a longer view of the body of evidence as a whole. It is more than citing differences, discussion of alternative interpretations makes meaning of the events and individuals incorporated in the historical account. Discussions of alternative interpretations can be made in any or all of four places: In the running text; in the epilogue, the afterwards, or sections on final thoughts; in the author's notes and commentary on the book; and in the reference sections. For instance, in Joan of Arc, Stanley (1998) writes, “Depending on our point of view, we can account for them in three ways,” (unpaged), and lists alternative theories about the miraculous visions and voices. These alternative points of view, or interpretations, are coded in the category Alternative Interpretations.

Alternative interpretations are distinguished from conflicting sources. Alternative interpretations prefaces the different information with the supposition that information might be viewed one way or another. However, conflicting sources gives other information, such as “Others see the hanging differently,” without the prefatory statement
about the possibility of multiple perspectives depending on people's economic status, or position in the community, for instance. A conflicting source gives another view, one source thinks differently from another source. An alternative interpretation concerns the discussion or speculation on multiple ways of looking at information about events and situations.

Alternative interpretation is to distinguished from hedging in attitudinal metadiscourse in that hedging pertains to addressing particular information within the larger body of text. Discussion of alternative interpretation embraces a range of thinking and multiple facts and provides a wider vision to a number of pieces of information. For instance, in his book *The Life and Death of Crazy Horse*, Freedman (1996) devotes a number of pages in the opening chapter describing the views of the Sioux toward the land, the camping places next to the rivers, the hunting grounds, and the relationships of the Sioux with other nations of the prairie. Then Freedman compares these perceptions to those the Sioux had of the changes the settlers made on the landscape as they moved across the prairies on their journey west. Freedman builds a case for alternative interpretations in his discussion. Phrases, sentences, and groups of sentences that indicate other points of view are coded as alternative interpretations.

11. **Socio-cultural identification:** The socio-cultural identification refers to gender, age, race, ethnicity, religion, and references to economic status. These are statements the author makes explicitly about the individuals or groups of individuals represented in the text. These are coded throughout the passages to be analyzed and are coded independently of generalizations, author's perspective, and assessment of sources. Where a paragraph makes reference to the age of boys and girls or men and women a number of
times in a single passage, it is coded once in the paragraph. If references are made to
differently aged men or women these are coded separately. A duplicate reference is coded
only the first time it is made. Nationality, such as the English, the French, or the
Portuguese, is coded under ethnicity. Where the terms French, Italian, or other ethnicity
is referred to more than once in a paragraph it is coded only the first time. The point of
the identification is to discriminate between different peoples past and present. In the
text, such as Joan of Arc, multiple references to the English and French are made in
paragraphs related to describing their battles, for instance. They are coded once.
Although, religion historically may be conflated with socio-economic status or ethnicity,
in the study, reference to religious affiliation is coded separately.

12. **Illustrations related to generalizations:** These include the visuals that elaborate
on, or provide new information for, the generalizations. They are coded and computed in
the same way as the illustrations for vocabulary and causal explanations and as described
in the General Definitions (see above). Where they are adjacent to the generalization and
its facts, either on the same, or the facing page, and they elaborate on the text, they are
coded with a plus. In *Children of the Dustbowl: The True Story of the School at
Weedpatch Camp* (Stanley, 1992), at the beginning of the chapter entitled “Our School,”
photographs show children in various activities in the school that are related but not the
same as those mentioned in the running text. Stanley writes, “Besides practical training in
aircraft mechanics, sewing, cobbling, and canning fruits and vegetables, [the children]
learned the basic subjects taught in elementary school and junior high” (p. 60). The
illustrations on the facing page, show a lesson on transportation in a classroom, and
students gathered around the hog pen, which suggests supplemental information.
13. **Captions:** Captions to illustrations relevant to generalizations are coded in the same manner as they are coded and computed in the categories, vocabulary and causal explanation, and as they are discussed in the General Definitions (see above). They are coded for content rather than for the quality of the type face. They are coded for elaborating on information in the running text, adding new information, or restating the text. They are coded in one category. As an example of elaborative information, In *Bound for America: The Forced Migration of Africans to the New World*, Haskins and Benson (1999) discuss the tight quarters of captives on the slave ships. The caption says they were stowed sitting up or on their sides, wedged together like spoons (p. 31).

For a caption to be coded as providing new information, it is related to the text, but provides a detail and explanation not in the text. For instance, In *Bound for America: The Forced Migration of Africans to the New World*, Haskins and Benson (1999) include the numbers of slaves carried on a slaver, the name for a slave carrying ship, and reference to notes on the American abolitionists. The text discusses conditions on the ship and how ships were designed and constructed. The name of the ship is given in the running text, but the other information is new. The information in the caption would be coded as new.

**Interrelationships research instrument terms.** The variables in this research instrument concern causal explanations. Causal explanations in historical nonfiction are defined as episodes that have an agent, one or more described persons who precipitate or commit an action, a motivation for the action, and consequences of the action.

**Identification of the causal explanation:** Identification is a function of its level in the text, type, and structure.
1. **Level of explanation:** The event can be found at the local level within a paragraph and in a page; the event can be page length, or it can occur at the more global level, across pages.

2. **Types:** They are of two types: Explicit and implicit explanations.

First, causal explanations can be signaled by causal conjunctive terms, such as, because, for, since, yet, due to, so, therefore, consequently, and hence. They are signaled by verbs such as “caused,” or “caused by;” and by nouns such as, cause, action, or effect. They are signaled by such phrases as, for this reason, as a result, on account of this, with this in mind, on this basis, arising out of this, to this end, in that case, and that being so. Whether they are presented in a sequence in which the stated effect comes before the action, or a sequence in which the cause comes before the effect, they are coded as a causal explanation. For instance, “Because of the rising violence against Blacks . . . some judges ignored the law” (Stanley, 2000, p. 51).

Second, causal explanations can be implicit in the passage. An example comes from *Be Seated: A Book About Chairs* (Giblin, 1993).

A ruler would sit on his stool, which was placed on a low platform, and gaze down at his subjects squatting on the ground below. Such royal stools were soon recognized as symbols of power and authority, and developed into the first thrones. (p. 40)

The implied causal relationship is that, because of the ruler’s sitting on a high stool gazing down on the people, people looked up to him and the stools were associated with power and became thrones.
For the purposes of this study, causal explanations are explicitly signaled by words or phrases referring to causality (cf. Hasan & Hakiya, 1976).

3. **Structure:** In this study, cause and effect relationships have two structures. First, the cause may be stated before the action. An example is the following: Because he was upset by the loss of the shoes, he screamed racial names at Lester.

   Second, the cause may be stated after the action; e.g., “He was always watching for posses because he knew what could happen if he was caught” (Stanley, 2000, p. 40). Both structures are to be coded, with the provision that the causal connection is made explicit.

In coding causal explanations in the Coherence of Interrelationships Research Instrument, each of the following five categories are counted where they occur in the text. For instance, some explanations will include a description of the individual, the motivation for the action and its consequence but not include the discussion of the significance of the event to the overall account. In this case, the description of the individual, motivation for the action, and its consequence are counted and checked on the research instrument.

1. **Description of the individual(s):** The description of the individual is coded when reference is made to what they look like, what they do in relation to the event, their occupation, gender, ethnic background, or their name.

2. **Explanation of motivation:** Motivation is defined as the condition or situation directly involved in precipitating the individual or individuals to act.

3. **Explanation of consequences:** Consequences are the outcomes, results, outcomes, or the implications of the action or event.
4. **Explanation of the significance of the event:** The significance is explained in terms of the overall ideas of the account in which the event has occurred, but it connects the specific causal explanation to the account. The significance of the event is contained in the context unit of the explanation. The overall ideas of the account are signaled by titles of chapters, or section headings. Generalizations about the topic support and repeat the overall ideas. For instance, in *Bound For America: The Forced Migration of Africans to the New World*, Haskins and Benson (1999) repeat a number of generalizations through the book. One concerns the inhumane treatment the captives experienced at every inch of their journey. Another concerns their resistance to being taken away from their homeland to a foreign place. Explanation of events and ideas through the book develop these generalizations. To be coded in the category of significance, Haskins and Benson, discuss the particular causal explanation of an event or situation in terms of their overarching ideas.

As another example, in the opening chapter of *Bound for America: The Forced Migration of Africans to the New World*, Haskins and Benson (1999) discuss events in Europe at the time of the growth of the slave trade between Africa and the New World. They list achievements in the arts, technology, and architecture. The consequence of Gutenberg’s invention of the printing press was that printed matter was available to more people and promoted a rise in literacy. The significance of the causal explanation relates the consequence of people’s being able to read and write to the search for new sources of wealth outside the borders of European countries. Haskins and Benson discuss the search for wealth as being related to the growth of the slave trade.
Significance of a causal explanation is also signaled by the author’s statements of what is important. For instance, Stanley (1992) makes frequent reference to the pride and resourcefulness of the Okies through the book. He remarks on this after a causal explanation, that they demonstrated resourcefulness and goodwill even in the face of ongoing hardship. The significance of the event follows the chain of consequences and results of the action. It is stated in larger terms than the event and its consequences, e.g., courage, community, and resourcefulness.

5. Causal explanations supporting generalizations: To support a generalization, an author may include a causal explanation. When coding for generalizations and a causal explanation appears as one of the supporting facts, the rater codes the explanation in this column of the Interrelationships Research Instrument. Causal explanations may have words or phrases that would suggest the explanation go in other categories, such as metadiscourse.

The explanation is coded once and should be coded where it has value added. For instance, an explanation could contain evaluative metadiscourse, but to code it as causal explanation provides more information about the topic, the book, the author’s work, and historical understanding. An example comes from Joan of Arc (Stanley, 1998) where the author writes, “Because of these two documents [the transcripts of her trial and rehabilitation] we know more about her than any other woman before modern time” (unpaged). The phrase “we know more about her than any other woman can be coded as salient metadiscourse,” for it suggests importance of information. However, the whole explanation has value added in terms of historical understanding, the function of public
documents such as transcripts in developing historical accounts, and the perspectives that might be taken on Joan. The explanation would be coded as causal explanation.

6. Illustrations related to the causal explanation: Illustrations can supplement the information of the causal explanations providing information about any of the components of the explanation. They can provide description of the individuals. For instance, In Bound for America: The Forced Migration of Africans to the New World (Haskins & Benson, 1999), an illustration showing an African woman being branded gives an example of who was included in the slave trade (p. 27). She is in chains and her arms go up as she stiffens in pain under the hot iron.

Illustrations that elaborate on and explain the information in the text are coded with a plus. Illustrations that do not elaborate on the text, or that are distant from the causal explanation in the text are coded with a minus. They will be coded and computed in the same manner as described in the General Definitions (see above).

7. Captions: Captions to maps, photographs, charts, diagrams, and illustrations can give information that supplements the text. For instance, in the introduction to his book, Across America on an Emigrant Train, Murphy (1993) explains that people migrated to America from many different countries for a variety of reasons. The facing illustration of a row of boys lined up on a railroad platform bears the caption that reads, in part, “these wayward boys from the Earl of Shaftsbury’s Reform School in England were shipped to Wakefield, Kansas. It was hoped that loving (but strict) foster parents would make productive citizens of them” (p. 1). The captions will be coded and computed in the manner discussed in the General Definitions (see above).
Integration of primary sources instrument terms. Primary sources are included in the text to elaborate upon information that supports generalizations or causal explanations.

1. Source: In the research instrument are two sources, the name and description of the source, and the name of the source.

   a. Name and description of the source: The author describe the source and give the name of the person who generated the source. For instance, in Bound for America: The Forced Migration of Africans to the New World, Haskins and Benson (1999) note the name of the person writing the document and identifying description of a source when they write, “J. Taylor Wood, a midshipman on the United States brig Porpoise, described a group of slaves” (p. 24). In another place, Haskins and Benson name and describe a source, and, when referring to the source a second time on the next page, they refer to only the name. Where the author gives the name in a second reference, it is coded as name and description because the author has described the source previously. This coding distinguishes sources simply named, or referred to as a generic source, from those that are described, either as an adjacent description, or one that has occurred previously. In a number of books description of individuals thread through sections of the book (cf. Cox, 1998; Stanley, 1998). In these cases the source is described although may only be named for the specific quote or paraphrase.

   b. Name of the source: When the author mentions a person’s name, or a more generic term, such as “One of the witnesses at the execution . . .” the reference is coded as name of the source.
2. **Category of the source:** The author can quote or paraphrase the source and can include a citation.

   a. **Quotation of the source:** The source is set off in brackets, quotation marks, italics, or is indented in the running text to be coded as a quotation. Also the author makes reference to the source either at the beginning or at the end of the quotation. In *Clara Schumann: Piano Virtuoso*, Reich (1999) quotes letters and diaries within paragraphs as well as in italicized blocks.

   b. **Paraphrase of the source:** Where the author indicates what someone wrote or said indirectly, this is coded as a paraphrase, even when the author has quoted the source in another place.

   c. **Citation of the source:** A citation would include name of the document, the author, the volume where applicable, and the date.

3. **Use of primary sources:** As a definition “primary sources are materials created (written, filmed, painted, etc.) during the time under study. These are eyewitness accounts such as those contained in the journals of Lewis and Clark” (Parker, 2001, p. 104). Secondary sources are interpretations of these primary sources.

   a. **Source as elaborative information:** The primary source can elaborate on information as a supplement and gives detail for it. For instance, in *Clara Schumann: Piano Virtuoso*, Reich (1999) tells what contemporaries said about Clara's technique and musicality, referring to Wolfgang von Goethe who said, "She plays with as much strength as six boys" (p. 96). The Director of the Conservatory in Frankfurt made similar comments. Mention is made of these details because they provide the foundation for Reich’s comments in the next
paragraph. She notes, “For Clara, too, music was separate from womanhood . . .
to live was to make music” (p. 97) and then quotes one of Clara’s diary entries of
1853. Clara writes, “When I am able to practice regularly, then I really feel totally
in my element . . .” (p. 97). The use of the primary source elaborates on the
information that has come before and provides support for what the author says
about Clara later, that “she never regarded being a musician as merely a job” (p.
97).

i. Elaboration of information supporting generalizations:
Where the primary source supplements the information supporting
generalizations it is counted as elaboration. When the primary
source is used to support, or explain, a generalization, it is coded as
elaborating on the generalization. The generalization is explicit in
the text and comes before or after the primary source.

ii. Elaboration of causal explanations: When the primary
source elaborates on any of the parts of a causal explanation it is
counted as elaboration of causal explanation. ii. When the primary
source is used in relation to support for, or explanation of some
part of a causal explanation, it is coded as elaborating on causal
explanations.

iii. Elaboration of other information: When the primary
source elaborates on description, solution to a problem, or
procedure, it is counted as elaboration of other information. When
the primary source does not explicitly elaborate on a generalization
or a causal explanation, or when it is part of a narrative, then it is coded in the subcategory, other.

b. **Source as necessary information**: When the primary source takes the place of necessary information, the author does not provide information that establishes a context for the material of the source. In *Bound for America: The Forced Migration of Africans to the New World*, Haskins and Benson (1999) have a section on selecting slaves for purchase. “Even more important than ethnic background was physical condition of the captives.” The authors give a description of J. Taylor Wood who rescued a group of slaves from a Spanish slave ship. That is, the authors begin the section, in one paragraph, by talking about the condition of captives before they are selected for purchase and shipment and, in the next paragraph, quote a description of slaves that are rescued. In the following paragraph the authors return to the selection and purchase of slaves and give primary sources that enumerate prices of African men, women, and children. In this passage, the quotation of J. Taylor Wood takes the place of necessary information, and operates as a distraction from the topic about the purchase of captives for slavery.

4. **Length of primary source**: The length of the primary source refers to the number of words that are quoted or paraphrased.

5. **Nature of the connection**: The connection between the primary source and the running text can take two forms. The first is a transitional sentence and the second is a restatement of the text.
a. **Transitional phrase or sentence**: The author inserts a sentence that summarizes the information already given and introduces the primary source. For instance, in *Clara Schumann: Virtuoso Pianist*, Reich (1999) devotes a number of pages to describing the development of Clara's career during the early years of her marriage to Robert, that she was a mother and a wife and had a full schedule of performing. "For Robert the marriage was not easy because he couldn’t write when he accompanied her on concert tours and was often snubbed when she was invited to parties" (p. 52). In introducing additional supporting information for his misery and loneliness, Reich writes the transitional sentence, "When she traveled to Denmark by herself he was miserably lonely, and regretted his decision to let her go" (p. 53). Then Reich includes an excerpt from one of Robert’s letters to Clara, which says, in part, “Have you forgotten me already? Yesterday I could hardly bear the melancholy that overwhelmed me” (p. 53). The primary source supplements the information that Reich has given about their life together.

b. **Source as a restatement of the text**: The primary source says the same thing the body of the text does. The source may restate an adjacent sentence or longer passage. The source may also be restating a sentence that has occurred earlier in the text. For instance, Stanley (1998) notes the comments of two noblemen at the trial for the rehabilitation of Joan, after her death. Earlier in the book, Stanley writes the statement the first time. When the paraphrase is given at the end of the book, it is coded as a restatement of information.
c. **Source as new information**: When the primary source provides information and vocabulary that is not in the running text, it is counted as providing new information.

6. **Successful or unsuccessful use of a primary source**:

   a. **Successful use**: When the source can provide supplemental information to the running text that follows from information already given, the use is successful. It is successful when it provides sufficient new information so that a person, event, and situation are described and explained so that the source supplements the information already provided. It is successful when connections between the primary source and the rest of the text are explicit. For instance, words are repeated and thoughts, observations, or feelings are restated or explained in more detail. The use is successful when the material in the primary source refers to the individuals and events that are the topic of the passage. Where the primary source fulfills at least two of the three criteria, it can be coded as successful.

   The author can include a quotation, that provides necessary information to the running text, can be long enough that it provides a context and explains or describes the event or person, setting, results of the event. In such a case, the use of the primary source is successful.

   b. **Unsuccessful use of the source**: Where the primary source does not fulfill two of the three criteria for successful use of the source, it is coded as unsuccessful. When the author has not provided any information as to time, place, and context for the contents of the primary source, the use is unsuccessful.
Summary

This chapter has presented the general definitions for the content analysis in this study. They were reference points, referees, and monitors of understanding during the course of the inter-rater reliability study and all subsequent analysis. The chapter has included the specific definitions of each of the research instruments designed to measure the categories of coherence in all the books. The Contextualization Research Instrument was used to measure the occurrence of vocabulary and metadiscourse. The Domain Knowledge Research Instrument was used to measure the extent to which author perspective, generalizations, discussion of sources, and socio-cultural identification occurred in the books. The Interrelationships Research Instrument was used to measure causal explanations. The Integration of Primary Sources Research Instrument was used to measure the occurrence of primary sources. The categories have been derived from the research literature on coherence and historical understanding in children. They have become the variables in the research instruments.

The next chapter is a review of the literature on coherence and historical understanding. The literature on coherence is the foundation for the disciplinary coherence specific to constructing meaning of historical text and the literature on children's understanding of how historians think and work influenced the focus of the investigation. At the end of the chapter is a summary of the characteristics of coherence that have been part of the study.
Chapter III

REVIEW OF THE LITERATURE

This literature review has four parts. The first part of the literature review concerns the research into coherence. The second part concerns research into children’s historical understanding. The third part consists of questions that have emerged from the review. In the last part is a synopsis of general characteristics of coherence that emerged from the review.

In the first part of this review the discussion of coherence follows three lines of research. The first line concerns the coherence of narrative text because it has influenced research on nonfiction text. The second line concerns interrelationships or the patterns and unity of connected statements. The interrelationships of information and ideas, explanations of events and their relation to overall, main concepts, and the presentation of implications and significance of events appear to be at the core of coherence. In creating networks of interrelationships authors also provide a context for information by providing detail and background information. The third line concerns the influence of the author’s presence as a contribution to coherence.

These three lines of research are related to the second part of the review, concerning children’s historical thinking and understanding. For instance, context and interrelationships are central to historical explanation and the examination of historical documents. Explanations of significance and generalizations about the meaning of historical events promotes networks of interconnected information. The guidance of the author provides perspective on the account, examines the evidence in light of other, possibly, conflicting evidence, and creates the connective links by explaining the
significance of events. The underlying question regarding historical understanding is, "What are the cognitive demands of learning in history?" (Greene, 1994, p. 89). The literature review on historical understanding examines what researchers have found children of different ages do as they learn history.

What is notable about the results of this review of the literature is that researchers have been exploring the problems related to coherence and comprehension for three decades. In the last decade, the research on coherence has engaged researchers of children's historical thinking and understanding.

**Research Literature on Coherence**

Researchers have been interested in what happens during the process of reading. They recognize that reading is a transaction between the reader, the text, the author, and the community of readers. To describe the transaction Rosenblatt (1994) writes, "The reading of a text is an event occurring at a particular time in a particular environment. . . The transaction will involve not only the past experience but the present state and present interests or preoccupations of the reader" (p. 20). Beck, McKeown, Sinatra, and Loxterman (1991) make implicit reference to the transaction when they write, "If the reader does not bring knowledge to bear on the text, or if features of the text inhibit the reader's ability to make connections between given and new information, comprehensibility may be impeded" (p. 255). Beck et al. write, "According to a text processing view, while moving through a text, readers encode explicit text information and combine it with knowledge of word meanings and language conventions, knowledge about the form of texts, and general knowledge related to the content" (p. 255). A representation is more than recalling the literal content. Trabasso, Secco, and van den
Broek (1984) write that a representation is the organization of events so that information can be retained and used for other purposes.

The effects of coherent text are not the same for all readers. For good readers and for those with knowledge of the content, the author’s making explicit connections among ideas and information can impede their constructing a situation model (McNamara & Kintsch, 1996; McNamara, Kintsch, Songer, & Kintsch, 1996). McNamara and his colleagues (1996) have hypothesized that, when reading less coherent text, that is, text where connections are not explicit, more knowledgeable readers make the connections in the process of reading. They have more content knowledge to draw upon in constructing a situation model. They are more likely to monitor their reading, asking questions of the text and visualizing the content of what they are reading, than less able readers.

One line of research into textual features that contribute to coherence has involved narrative text. Researchers into the coherence of expository text have referred often to the research of narrative text. The discussion examining the literature on aspects of coherence in narrative text provides background for the research into expository text. Trabasso et al. (1984) looked at the relationships among cohesion, cohesiveness, and coherence because they thought these characteristics were at the heart of textual connections. "Causal cohesiveness of the events in a story is determined at the level of event meanings, where meaning includes both the underlying conceptualization of the event itself and the event's causal or logical relations to other events" (p. 85). The cohesion of a text, namely the integration of the events into units, is accomplished with connective references (Halliday & Hasan, 1976). When a referent points back to a previous item it is an anaphoric referent. It might be in a sentence right after the sentence
to which it refers or it might be distant to the sentence. The instances of such referents form cohesive chains in the passage. A connective referent that points forward, that is, points to an item that comes after it is a cataphoric referent. Halliday & Hasan (1976) provide an example. "This is how to get the best results. You let the berries dry in the sun, till all the moisture has gone out of them..." (p. 17). The elements to which the referent points often is more than one sentence or phrase. Trabasso et al. (1984) suggest that although cohesion helps the reader relate sentences together, their longer term connectivity is determined by the extent to which one event can be inferred from another event. Cohesion is "the integration of the events into units" (p. 85) and is a local process in that it deals with subsets of events. However, coherence "is a property of the whole in that the units or subsets themselves become interconnected" (p. 85).

Schema Theory and Reading

In reading narrative children discover the grammar of story telling reflected in literature (Egan, 1988). For instance, a story has a central character and other characters related to the central one, motivations for the character's actions, consequences of their actions, resolution, and settings in which the sequence of actions unfolds. Children develop a schema (Rumelhart, 1980; Stein & Glenn, 1979) for story, a system of organizing new knowledge that hearing and reading new stories represents. The schema also serves as a system to access the knowledge of story at a later time. Rumelhart has conceived of the theory of schemata in a variety of ways, as packages of knowledge, as scripts of plays, as procedures to account for patterns of observations.

[A schema] is a data structure for representing the concepts stored in memory.

There are schemata representing our knowledge about all concepts: those
underlying objects, situations, events, sequences of events, actions and sequences of actions. A schema contains, as part of its specification, a network of interrelations that holds among the constituents of the concept in question. (p. 34)

Children develop story schema in reading narrative and in telling stories. They have expectations about how information in particular texts is organized. But in the transition to reading expository text, in a sense, children learn to read again. Developing a schema for nonfiction literature presents a challenge. Levstik (1998) points out children’s perceptions of reading as they are told to “look it up” when they have questions. A third grade child explains, “I don’t think they realize how hard it is for us to look things up. I’m just not very good at it” (p. 181).

**Interrelationships and the Connectedness of Text**

A second line of research has examined how textual connections contribute to coherence. Text that provides readers with more connections among fewer ideas enables readers to recall more of the explanatory detail and more of the important ideas than text that provides many ideas that are not connected (Kintsch, Kominsky, Streby, McKoon, & Keenan, 1975). Part of the effect of the multiple connections is that they are restated in different terms. Kintsch et al. (1975) carried out a study in which psychology undergraduate students read and recalled short and long history and science passages. Although the study occurred more than two decades ago, it is frequently referred to in more contemporary research literature in relation to cognitive processing while reading.

Students recalled text with more accuracy and detail when information and concepts were linked together and repeated in different terms. Passages with few
connected concepts were recalled better than passages with many concepts (Kintsch et al., 1975). The passage with three major terms, Greek, art, and Roman, were repeated in the passage, “The Greeks loved beautiful art. When the Roman conquered the Greeks, they copied them, and, thus, learned to create beautiful art” (p. 198). The passage with more major terms was, “The Babylonians built a beautiful garden on a hill. They planted lovely flowers, constructed fountains and designed a pavilion for the queen’s pleasure” (p. 199). The eight concepts of the passage were Babylonians, garden, hill, flowers, fountains, pavilion, queen’s, and pleasure. The concepts were not connected to other parts of the passage in the same way as the fewer concepts of the first passage were. The repetition of the terms was implicit in the sentence “When the Romans conquered the Greeks, they copied . . . and learned” referring to the Romans (p. 198). Kintsch et al. (1975) also found that propositions positioned earlier in the passage were better recalled than those placed later. But superordinate, main and large ideas, “are recalled substantially better at all positions” (p. 204).

Certain kinds of information helps learning. In a series of studies Bransford et al. (1982) investigated how elaborative information helps students recall information. They challenged the idea that elaborative information, in itself, facilitated retention. The test group of subjects was asked to generate elaborative sentences for characters and their actions that would suggest a relationship between the description of the character and the action. Bransford et al. (1982) and Stein et al. (1982) made the distinction between precise and imprecise elaborations. They argued that precise elaborations were more helpful for novice readers, who do not have a repertoire of semantic meaning for terms, reading specialized text. Bransford et al. wrote, “the value of semantic processing may be
contingent on the learner already having a well-structured semantic knowledge base in that domain” (p. 392). That is, not all elaboration works for different readers, and especially for readers who are building a body of discipline knowledge.

In the experiments of Bransford et al. (1982), subjects had more generic content to elaborate upon, than strictly historical text, but the nature of the elaboration influenced the degree to which they could recall the original content. For instance, where a subject said “the strong man helped the woman carry the heavy packages to her car” which suggested a relevance for the man being described as strong, the relationship of man, woman, and packages was more readily recalled than where the relationship was not precise. The statement, “The strong man helped the woman cross the street” is not precise because it does not demonstrate a relevance for the man being strong. “The tall man reached for the box of crackers on the top shelf” is precise whereas, “The tall man reached for the box of crackers while making lunch” is not. Bransford et al. (1982) and Stein et al. (1982) found that elaborations that demonstrated relevance of attributes helped the less successful readers recall material, whereas more skilled readers performed equally well with both versions of the sentence. Their findings showed that knowledgeable and skilled readers processed information differently from less skilled readers. The more skilled readers studied the arbitrary and imprecise elaborations longer than the less skilled readers and they appeared to take longer to read the passages. The authors concluded that the less skilled readers appeared “less aware of the difficulty of learning arbitrary material” (Bransford et al., 1982, p. 395) but that they could adopt different approaches to the problem of learning new information (Stein et al., 1982). That
is, with practice readers could form precise elaborations that showed the relevance of descriptive information.

Crismore (1984a, 1984b) wrote that, in the analysis of sixth grade social studies books, the lack of an explicit global thematic idea affected unity and coherence. Beck, McKeown, and Gromoll (1989) revised passages of historical content in fifth-grade social studies textbooks to make them coherent. In their revisions they made connections between the overall theme and the information in the text and explained the significance of the information in relation to the theme. They provided the background information necessary to explain the motivations for people's actions. Beck et al. (1989) discussed a sample passage in the fifth social studies textbook on the topic of the American Revolution, describing the Committees of Correspondence. "Sam Adams set up committees in many parts of Massachusetts. These committees wrote to, or corresponded with, one another. Soon there were committees in all the colonies" (p. 142). Yet, the significance of the work of the committees was that their correspondence was a powerful force in fomenting revolution. They were instrumental in uniting the people through ideas that engendered shared purpose and identity. Beck et al. made these connections explicit by explaining how increased literacy and access to a growing abundance of reading material, such as newspapers, contributed to the purpose of the Committees of Correspondence.

Like characteristics of text, illustrations and diagrams may also contribute to coherence (Holliday, 1975). They may be intended to explain or supplement information but children may not "read" them. Holliday (1975) found that certain kinds of illustrations may facilitate learning from text. Drawings were placed above the text they
were demonstrating. Next to the drawings were explanatory labels. Holliday found that students who had read the text with drawings and explanatory labels could make inferences from the text better than students who read only the verbal text.

**Overall concepts, generalizations, and important ideas.** For a text to achieve coherence all the subtopics, sections, and key concepts are relevant to the central topic (Beck & McKeown, 1989, p. 51). Information of a passage is connected to the title and section headings (Beck, McKeown, Sinatra, & Loxterman, 1991). Explanations of concepts or statements and their significance are related to the overall topic (Beck, McKeown, & Gromoll, 1989). Relationships among ideas are explicitly stated (Anderson & Armbruster, 1984) by the use of coherence relationships. The use of short, simple sentences can obscure the meaning of relationships and impede coherence (Katz & Brent, 1968) and a single unified perspective contributes to coherence (Black & Bern, 1981).

In a coherent text, passages are organized around a few aspects of a topic. They are introduced, explained, and developed in depth.\(^1\) The relationships and the connections among them are made clear.\(^2\) The connections are not interrupted by long digressions. The content embodies the general concept made explicit in the text’s structure. An aside or digression in a passage should not be so extensive as to be a switch in a topic (Beck & McKeown, 1989). The inclusion of an aside or digression is predicated on three criteria: its presentation should be after the main part of explanatory text. Or, it is set off in a

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1. The more connections are made between main ideas and supporting information, the more important the main ideas become (Trabasso & Sperry, 1985) and the more likely they are to be recalled (Bransford & Johnson, 1973). Elaborations of content promote recall and learning. Less successful students can be instructed to make the elaborations of text where elaborations are not explicit that more able readers generate on their own (Franks et al., 1982, Stein et al., 1982).

2. Being able to make multiple connections among items is a function of the level of knowledge of the items; such as a child’s groupings of dinosaurs with which he is most familiar. The greater the number of connective links items have, the more likely they are to be remembered over time (Chi & Keoske, 1983).
separate box to indicate its divergence. Or, the reader is alerted that an aside is going to occur and its relationship to the main topic is explained.

Causal explanations. Approaches to making causal connections is more than an intuitive process. Deciding whether two events have a causal link, explicit and logical criteria signal the beginning and end of a causal chain. "An analysis of all possible causal relations is more likely to form networks rather than linear orders" (Trabasso, Secco, & van den Broek, 1984, p. 84). In their study with college students Black and Bern (1981) found that the students were significantly more likely to recall pairs of sentences with causally related events than pairs of sentences with temporally related events. For instance, students recalled the sentences, “While he was sitting on a huge log he lost an old pocket knife. He felt sad about his loss as they took a few more pictures and headed back” (p. 268). Modified to make a temporal sequence, the first pair of sentences became “He was sitting on a huge log and lost an old pocket knife. He felt sad. They took a few pictures and headed back.” Black and Bern noted that readers could create a tenuous causal chain connecting the statements, but the point they made was that statements easily connected, those that require less inferencing, are remembered better than those difficult to connect with a causal inference.

Stein and Glenn (1979) conducted a study with first and fifth grade students to collect recall data on several stories represented in children’s literature. They examined the recall of individual statements and recall in terms of the informational categories specified in the researcher’s story schema which included major settings, initiating events, direct consequence statements, and internal responses. Two examples of a major setting the researchers gave were, “She was ten years old,” and “There was once a fox
and bear.” The authors identified statements of thinking, seeing, hearing, wanting, deciding, and feeling as internal responses. The older children recalled significantly more internal response statements and consequence statements than the younger children (p. 98). Stein and Glenn noticed a developmental difference in that the older children made more inferences in their retellings that were related to causal connections but that were not given in the passage. They found that the children did not differ in what they thought were important statements in the stories, nor did they differ in their temporal organization of events. This study suggests that children learn to understand and use causal connections along a continuum. That is, at a young age, their causal connections are simple and closely connected, but as they grow older, the networks become more complex and connections are indirect and inferred as much as they are more abundantly recalled from text.

Trabasso et al. (1984) and Trabasso and Sperry (1985) tested the effects of causal relatedness in terms of how children recalled story events. Trabasso and Sperry based their study on Thorndike’s (1917) suggestion that the importance of a statement depends directly on its relational role to other statements in the text. They assumed that the primary relations in narrative text are logical and causal in nature. They hypothesized that the more direct causal connections any one statement had with the causal chain from beginning to end of the passage the greater the importance of the statement to the passage. Trabasso and Sperry distinguished causal connections from temporal and spatial contiguity. “In the set of statements a person or object undergoes changes as a result of actions or processes acted on it by an agent” (p. 597). The stories Trabasso and his colleagues analyzed were those used in the earlier study Stein and Glenn (1979)
conducted with first and fifth grade students. Trabasso et al. (1984) found that the statements the children considered important were those with the most extensive causal connections along a causal chain from beginning to end of the passage. The relationship of these studies to coherence is that the importance of statements, events, and ideas will vary in the degree to which they are causally related to other statements.

Beck, McKeown, Sinatra, and Loxterman (1991) based their revisions of fifth grade text books on presenting a causal explanation of events. They provided the background information to explain how events contributed to the American Revolution and left out detail that was not directly related to the causal sequence, of who did what to whom and why. They provided explicit connections and presented motivations that explained why one event led to another or why a certain set of consequences emerged.

Explanation of historical events includes description of the agents, their actions, the motivations for their actions, and the outcomes or consequences of their actions. The causal thread is highlighted in complex events and explained in terms that are audience appropriate (Beck & McKeown, 1994; Beck, McKeown, & Gromoll, 1989). Part of the coherence of a text is the degree to which the information is adequate to access readers' prior knowledge about the text form and about the content. Coherence is an interaction between what the author writes and intends and what the reader comprehends and learns. “The creation of a coherent text means figuring out what information needs to be made explicit in order to develop an adequate explanation of an event, concept, or phenomenon” (McKeown & Beck, 1994, p.12).
Coherence as Contextualization

Introduction to topics. Introductory material prepares readers to think about the central topic, but to be coherent, a text introduces a theme of the topic and its implications which provides a context for discussion of the events (Beck, McKeown, & Gromoll, 1989). Topic statements, such as titles and headings that provide appropriate context for passages promote coherence (Bransford & Johnson, 1973). Headings explaining main concepts are clearly related to the text (Beck & McKeown, 1989). The goal of specific knowledge understanding is made explicit and the text is structured around the goals of the specific knowledge (Beck, McKeown, & Gromoll, 1989). Where detail and information is not connected to the important central ideas or themes, Hidi and Baird (1988) found they were not part of the content that students recalled. These factors of coherence contributed more to the recall and comprehension of less expert readers than more expert readers who could make the inferences that connected the parts of the passage (Spilich, Vesonder, Chiesi, & Voss, 1979; Stein et al., 1982).

Adequate background information to help readers relate new information to their prior knowledge is provided (Duffy et al., 1989) and is appropriate to the audience (Beck et al., 1989). Density of information is a function of the background information that is needed. More connections among fewer aspects of a topic means that connections are elaborated and repeated. Coherence breaks down when the density of information in a passage requires processing of information about which readers do not have adequate knowledge (Beck, McKeown, Sinatra, & Loxterman, 1991). To be most effective background information explains more about fewer terms and concepts that are interconnected in different ways, than when a multitude of terms are introduced that are
not explicitly connected. Wade, Buxton, and Kelly (1999) found that “characteristics that made texts uninteresting involved problems related to comprehension, specifically, lack of adequate explanation and background information, difficult vocabulary, and lack of coherence” (p. 195).

**Metadiscourse and Coherence.** As part of their longitudinal study of the effects of revising social studies textbooks for children, Beck, McKeown and Worthy (1995) sought to make books more interesting as they developed causal explanations. They had students respond to informational and issue questions with four different groups of text. These were the original textbook, the voiced textbook, the coherent revised text, and the voiced coherent revised text. An example from the textbook is the following: “The British lawmaking body was and is still called Parliament. . . . The British started passing laws to tax the colonies. Britain thought the colonists should pay their share of the cost of the French and Indian War” (p. 226). An example of voiced text shows action and temporal connections among events. Beck et al. (1995) wrote

> When the French and Indian War was over, Britain’s law making body, which they called Parliament, came up with the idea of taxing the colonists.

> “After all, it’s only fair to ask the colonists to share in the cost of the French and Indian War,” the British said. (p. 227)

Crismore (1983, 1984a) defined metadiscourse as information an author gives the reader about the structure of the text, the presence of important ideas, and connections to details related to them. The author alerts the reader to questions about the information and notes certainty of information. The phrase, “After all, it’s only fair…” is an example of expressing certainty. Metadiscourse is communication between the author and the reader.
and serves to animate the information. Paxton (1997) examined the possibilities of an author's presence in his study with high school students. He found that revisions to students' history textbooks alerted readers to ways of thinking and organizing information. Students' questioned the author's writing and ideas and talked about the topics in the revised textbooks more than they did in reading the unrevised textbooks.

**Interesting Details and Coherence**

In addition to the research on interrelationships and contextualization, researchers have investigated the relationship of the presence of interesting detail on coherence. An important factor in children's constructing a coherent text is the extent to which they are engaged in reading it. Engaging, entertaining text captures the attention of readers. Kintsch (1980) distinguished emotional interest, which tends to arouse the reader, from cognitive interest, which results from certain incoming information activating background knowledge. He argued that small shifts in expectations of incoming information inspired interest. If the new information was too new, interest was stymied. Kintsch explained that the degree to which text is interesting is related to how well the incoming novel information can be linked to background knowledge. Iran-Nejad (1987) investigated the premise and found that stories containing surprises were more interesting than stories that didn't, if the stories included a resolution. He concluded that interest is a product of a process in which unpredicted information is resolved rather than a motivator to undertake the process.

Providing children with text containing interesting detail is a provocative way to engage them in reading but may not help them understand important information (Hidi & Baird, 1988). Interesting details can distract them from constructing overall meaning.
Garner & Cunningham, 1989). Children, who have less knowledge of the content remember interesting details, but do not have a sense of their connections to the important concepts of the topic (Spilich, Vesonder, Chiesi, & Voss, 1979).

Garner, Gillingham, and White (1989) conducted studies with seventh graders examining the influence of interesting, or seductive details, in the informational text they wrote, on the children's processing of a text. They looked at children's recall at the global level, where children derive the gist of the text, through processes of deletion, generalization, and connection. They based their study on the understanding that children not experienced in thinking about broad concepts will change their minds about the gist frequently when the main idea is not explicitly stated in the first sentence. Garner et al. (1989) revised the original text, embellishing it with interesting detail in one case, and, in the other, they repeated the important generalization, which appears in the first sentence.

*It is an important fact about insects that some live alone, and some live in large families* (sic). Wasps that live alone are called solitary wasps. A Mud Dauber Wasp is a solitary wasp. Click Beetles live alone. When a click beetle is on its back, it flips itself into the air and lands right side up while it makes a clicking noise. Ants live in large families. There are many kinds of ants. Some ants live in trees. Black ants live in the ground. (p. 50)

Garner et al. (1989) found that children, who were explicitly provided the general main idea and support of redundant information, performed better than children with minimal support. Both groups performed better than the children who read the text with the interesting details and no explicit important ideas. Garner et al. reasoned that domain knowledge of insects might contribute to making connections between supporting and
main ideas. A knowledgeable reader might read the first sentence and think of instances of solitary insects. For a less knowledgeable reader the coherence of the text provides the connections. One of the notable qualities of the paragraph above, is the repetition of major terms related to the overall concept, which echoes the effects of the passages in the study of Kintsch et al. (1975).

**Research Literature on Children’s Historical Thinking and Learning**

Historically, elementary and middle level teachers have relied on textbooks for teaching and learning history (Romanowksi, 1996; Tyson-Bernstein, 1988), or textbooks have influenced the way history is taught in the classroom (Paxton, 1999). In the last decade children’s nonfiction literature has gained popularity in supplementing textbooks and in some cases replacing them (Bamford & Kristo, 2000). Research has uncovered the limitations of content area textbooks in social studies; such as, they are dry and like lectures (Paxton 1997; VanSledright & Kelly, 1998); explanation of the significance of information is missing (Beck & McKeown, 1994); content does not support generalizations (Brophy, 1992); they lack an explicit global thematic idea (Crismore, 1984a); inquiry is not promoted (Kantor, Anderson, & Armbruster, 1983); and learning in depth is sacrificed to covering information (VanSledright & Kelly, 1998).

In the last decade the research conducted with children has explored their perceptions of history (Barton & Levstik, 1998; Levstik & Barton, 1996) and their understanding of what historians do (VanSledright, 1996a). In working with students, researchers have found that students give value to learning history, so that they have knowledge when they are in college or getting a job (VanSledright, 1998) or so that they can learn from the mistakes of the past (Seixas, 1994; VanSledright, 1997). Yet they
“often struggle to recall what they thought they had learned” (VanSledright, 1996b, p. 116) and formulate show misconceptions and conflations of information from different periods (Beck & McKeown, 1994; VanSledright, 1996a). Children construct their own historical accounts as narratives that included dramatic and compelling action. Their accounts are not driven by available historical evidence (VanSledright & Brophy, 1992). Children view causality as a kind of inevitability rather than a complex network of motivations and actions (Brophy & VanSledright, 1997). Researchers have explored the understanding of young children (Barton & Levstik, 1998) as well as older students (Greene, 1994; Wineburg, 1991) and have examined historical understanding in a cross section of older and younger students (Perfetti, Britt, Rouet, Georgi, & Mason, 1994).

Brophy (1996) noted that interviews with children have shown that their knowledge of history is often represented “in the form of story like narratives, with plot focused on motive and setting. The stories feature themes such as monarchs competing for power . . .” (p. 9). Their accounts varied widely from vague combinations of information to more elaborated causal explanations formulated in terms of historical trends. Brophy and VanSledright (1997) wrote that children make few comments on the nature of the quality of evidence, the perspectives of different sources, references to alternative interpretations, and the kinds of reasoning more expert writers of historical accounts bring to their topics. This discussion looks more closely at what children do and say in their demonstrating historical understanding.

Learning History and Thinking as Historians

Downey and Levstik (1991) noted that concern for children’s developing historical thinking and learning has been eclipsed by research interest in the teaching of
history and more particularly, teaching in other areas of the social studies. But the last
decade has seen greater exploration of children's historical understanding, both in terms
of response to specific questioning and in response to more open-ended stimulus, such as
children’s rationale for sequencing historical photographs (Barton & Levstik, 1996).
Although a number of studies look at the thinking of narrowly defined age groups,
children in the fourth and fifth grades or fifth and sixth grades (Barton, 1997; Brophy,
VanSledright, & Bredin, 1992), other researchers have looked at a wider range of ages
(Barton & Levstik, 1996; Knight, 1989) in exploring children’s developing historical
thinking. Knight (1989) found that the greatest development in children’s perceptions of
people and events that go together in time occurred in elementary school not high school.
Students’ perceptions continued to grow but at a slower rate by the ages of twelve and
fourteen. The extent to which children sequenced events grew most radically between the
ages of 6 and 10. He found that six-year olds knew their perspective on events would
differ from other children’s, but eight-year old students described perspectives of other
people and were beginning to make accurate analyses of people’s actions. By the time
children were ten, they presumed motives and accounted for people’s inconsistent
actions.

Knight (1989) made the comment that general abilities in reading interact with
specific content that affect how the abilities are manifested. Domain specific knowledge
is not exclusive of other influences such as ability, interest, and experience. Knight found
that children who were encouraged to ask why people lived and acted as they did in other
places and other times, were better able to sequence events than the students who were
not. He noted, however, that their sequence of events did not change. That is, children did
not necessarily rework information to construct different accounts. He also found that eight-year old students benefited significantly in the discussion group. Knight suggested that young children have a rapidly developing sense of motivation, causality, and consequences, and implied that a further area of teaching and investigation is how children construct different accounts from the information they have. Whether creating alternative sequences is a function of instruction and experience or a matter of development, or both, is unclear but the work of Knight suggests that the culture in which children talk about historical events may have more influence on students’ achievement than has been presumed.

Downey and Levstik (1991) underscored the role of experience and instruction in promoting children’s historical understanding. Barton and Levstik (1996) found that young children in the first grade could sequence historical events, represented by photographs, but without the detailed explanation of the older children. Only one child in the study reasoned that different events in different places could be happening at the same time. In other words, one child, came up with a rationale for alternative interpretations of events. Barton and Levstik pondered the influence of the way history is taught, as a single story, on children’s thinking. Encouraging children to consider different sequences and interpretations of events is a teaching option suggested by the studies of Knight (1989) and Barton and Levstik (1996).

VanSledright and Kelly (1998) posed the question, “[Do] children need to know the ‘what’ of history before they could know its ‘how and why?’ [Do] they need knowledge of the past in order to consider how and why it had become knowledge as is frequently assumed?” (p. 259). He and his colleague found that six fifth-grade children,
who might not independently evaluate an eye-witness account for reliability or assess the
cultural perspective of a document and author, could, when encouraged to do so.

VanSledright and Kelly saw evidence that students learn the content of history at the
same time they learn the procedures of how historians work when they do classroom
research using multiple texts.

Van Sledright and Kelly (1998) found that the children thought quantity of text
was a criterion for validity, "The text has more details, it must be more accurate" (p. 253). With prompting, the children were able assess the reliability of the accounts. For instance, the students noted that the author had described the source. A student remarked,

The longer one says an ‘eyewitness recalled,’ so they might have written it
down and they (the historians) found a diary or something, they would
have known what the person said. This one says they got it from an
eyewitness but this one doesn’t say, so I’m not sure if it’s true. (p. 257)

VanSledright and Kelly (1998) found that the children read all texts the same way
without considering the sources or the perspective of the authors. The researchers
attributed this reluctance to two factors. First, the teacher had encouraged students to use
an “information-quantity criterion in their searches by structuring class work as
information retrieval tasks” (p. 260). Secondly, authors of the students’ texts did not
report their sources of evidence, except for picture citations, that would signal perspective
or reliability. Students weren’t given the means to assess the information. The study
suggests that certain kinds of texts, those which engage children in critical historical
reading and those in which authors make references to eye-witness accounts or weigh one
account against another, can help children develop historical understanding.
VanSledright (1996a) worked with a high school teacher, who had recently finished her doctorate in history. She did not ascribe to the practice that younger students can learn the “how” of historical thinking as they learn the “what” of history. She believed that she could spend more time with the older, accelerated students in their wrestling with “issues of historical evidence, contrasting interpretations, and the role of historians in constructing history” (p. 285). The younger freshman students, in her view, lacked the disciplined reading, study, and a repertoire of historical information necessary for dealing with interpretations and historical issues. Her view was shared by Beck and McKeown (1988) who suggested that learning thinking processes might not be possible if the learner did not have enough knowledge of a topic to recognize central ideas.

VanSledright (1996a) noted that, in his study, the teacher’s understanding of current historiography did not permeate the study in the classes. Her perspective of contemporary historical writing and thinking included the notion that history was a collection of assumptions, aspirations, and antipathies. Historical sensibility conceived of all knowledge as having meaning and rooted in cultural processes. “It substitutes continuing social experimentation for certainty” (p. 264). But the children did not benefit from her understanding of how history was done. VanSledright (1996a) wrote that children are at the margins in learning history. “They [are] not asked to connect the colonial past with their own experience; to question, interpret, evaluate, or judge historians’ accounts; to imagine [a] colonial past as historians might; or to inquire into why historians have concluded what they have” (p. 337). VanSledright and Kelly (1998) placed the students in the middle of historical inquiry in the questions. They asked, “How
do historians compile their explanations and narratives and how do they decide what is significant and what is not?” (VanSledright, 1996a, p. 341).

**The Appeal to Authority**

Students tend to appeal to authority when dealing with conflicting sources. In their interviews with fifth grade students at the beginning and at the end of their study of history, Brophy, VanSledright and Bredin (1992) asked fifth grade students what they would do to resolve conflicting sources. One student answered, “Like they’d take it to a judge or something, a judge that’s higher . . . but someone that all of them trust and they’d know that he’d tell the truth . . . he’d listen to both sides and work it out” (p 457). Brophy, VanSledright, and Bredin wrote, “Most of the students appeared to believe, at least implicitly, that one could arrive at a ‘right answer.’ In part, this was because they were thinking about ‘existence proofs’ (such as proving that King Arthur actually existed) rather than about more subtle matters of interpretation of the causes or meanings of known events” (p. 457).

The appeal to authority appears to be part of the historical understanding of older students as well as elementary students. In his study, Wineburg (1991) studied the extent to which the subjects used three heuristics of historical thinking, evaluating sources, or sourcing, corroboration of evidence, and contextualization, the extent to which a context of the event can be reconstructed. (A fourth heuristic, the consideration of absent evidence was deleted from the study, but is mentioned here because it provides a fuller picture of the interpretive process. The historian examines what is in the document as well as what is not.)
With reference to the sourcing heuristic, the students look for the source of the document and happened on to it while reading down the document. According to Wineburg (1991), the extent to which one understands the source of the document promotes, or impedes, construction of meaning. Whereas the students waited to locate the document in a time and place, the historians’ first step was establishing who wrote the document, when, and where, in relation to the event. Students “seemed to view texts as vehicles for conveying information in which the attribution was just the last thing to be read, one more bit of information to be added to the other bits” (p. 83). The students viewed the textbook as the authority on the information. The historians viewed documents not as bits of information, but social exchanges to be understood.

With reference to corroborating evidence, one of the eight students noted one discrepancy between two documents, and another of the eight students noticed a second discrepancy. One student noted that the textbook agreed with the British view. In corroborating evidence the historians went back into the previous text more often than the students as a way to double check the information and to rethink their own sense of the evidence. In corroborating evidence the question for the historians was, “How does a source’s bias influence the quality of the report?” (p. 83). But the students “seemed to view bias as binary, an attribute of some texts but not others” (p. 83).

Finally, in terms of the contextualization heuristic, historians went beyond establishing time and place of the document’s writing. They considered the context of the eyewitness accounts. In the instance of the Battle at Lexington, and the hours before it occurred, the historians asked, what can people see at night? What would they have heard, given the rain and mud? What would they have seen at first light? To what extent
would their vision have been obscured by mist or smoke from firing guns? The historians searched the documents for clues. They erected and tested scenarios. According to Wineburg, the differences between students and the other historians was a result of the beliefs that frame historical inquiry. Students had abundant historical information but had little idea of how historical knowledge was constructed. Wineburg concluded that more facts would not necessarily be helpful if students “remain ignorant of the heuristic used to create historical interpretations” (p. 84). He noted that students “seemed to have been guided by a general schema of battlefield encounters rather than, as in the historian’s case, specific details about the battle from the written documents” (p. 77). The students were less likely to use information from written historical documents as standards against which to compare the accuracy of the pictures than the historians.

**Children’s Sense of Time**

A sense of time is a characteristic of coherence in historical nonfiction (Beck, McKeown, & Gromoll, 1989). Placing events in a context of time and time passing contributes to their significance. How do children understand time and does time make a difference in the literature they read? Barton and Levstik (1996) interviewed children from kindergarten through sixth grade about their reasons for sequencing a set of photographs. They found that all the children had a sense of passage of time, for the youngest children, characterized by the simpler dichotomies of “olden times” and “now.” As children got older their categories of time became more numerous and they could explain their placement of the photographs. They had middle categories that were harder to explain, but their sense of continuity among their categories became complex in describing, for instance photographs of a scene from the decade of the 1950’s. Barton and
Levstik found that, by third or fourth grade, children understood the numerical basis of dates, and children in the fifth grade referred to dates in their explanations. “I think this was like in the 1930’s or 40’s just because of their clothes and their shoes” (p. 439). A sense of time creates a context for the events and conditions of a time and place that is unfamiliar, as the children in Barton and Levstik’s interviews did. Barton and Levstik emphasized that teachers would not expect younger children to have the same understanding of time as older children.

Barton and Levstik (1996) wrote that since children tended to see history as a linear development, special care needs to be taken not to present history as a single story. The children generally were equivocal about their placement of two illustrations. One depicted an antebellum urban scene and the other, life in the frontier west. The one depicting life on the prairies was more recent and yet the children placed this image earlier than the picture of the antebellum scene. “They seemed to think that any particular time is characterized by only one image and that these images stand in a definite temporal order: First there were pioneers; then there were cities. Only one sixth grade student suggested that the [two] images might occur in different geographic locations rather than at different times” (Barton & Levstik, 1996, p. 440).

Knight (1989) noted that children tended to think about unfamiliar places in the same way they think about unfamiliar historical events and periods. They learned about both second-hand rather than by direct experience. Where the children were encouraged to talk about why people lived and acted as they did they were better able to explain a sequence of events more readily than children who were not encouraged to think about why. Because Knight found that the children were much more accomplished at historical
thinking than they realized, he questioned the practice of asking children about what they think they know or what they think they can do. Both Barton and Levstik (1996) and Knight questioned the practice of asking questions because the inquirer does not access the knowledge and connections children make, on their own, in their thinking.

What children might know about chronology and historical time does not necessarily coincide with adult categories and vocabulary. Barton and Levstik (1996) suggested that children’s historical understanding can develop independently of conventional adult temporal vocabularies. As children age they are more able to explain their understanding of historical moments, and for younger children who are in the process of learning the numerical basis of dates, that smaller numbers come before the large numbers, dates do not have much value. All of the children in the interviews of Barton and Levstik (1996) could make distinctions between their categories, and children, by grade three, made distinctions within their categories. They compared the events and situations in the illustrations across their categories. By the fifth and sixth grades children made use of their prior knowledge in assigning dates to illustrations. Children from an early age distinguish what comes before and what comes after in relation to their historical understanding. Barton and Levstik suggested that what we know about children’s historical understanding is partly a matter of what we look for and hear in children’s talking about their understanding.

The Presence of the Author

Paxton (1997) revised the text so that students could read text of an invisible, anonymous author and at text with a visible one. The text with the invisible began the passage: “People began moving into the valley of the Nile River in search of food as
early 10,000 years ago” (p. 249). The version with the visible author states, “When studying ancient civilizations, I usually begin by scouting the lay of the land” (p. 249). The significance of such a procedure was made explicit. “You see, geography tells me a lot about why people lived the way they did” (p. 249). Then Paxton presented an overarching concept. “People past and present, usually take advantage of nature’s gifts” (p. 249). When students in Paxton’s (1997) study read the text without the visible author, they assumed the role of passive assimilators of information. But, the students who read the text with the visible author referred to the author six times more frequently than when they read the invisible author. They questioned the author’s research and the content of the passage.

In research that examined students’ ability to talk about the relationships between the perspective of the author and the reliability of historical documents, Wineburg and Fournier (1994) found that high ability secondary students did not see and talk about the relationship between the author and the author’s writing. They read documents as sources of information, rather than from a sense of the author’s perspective and purpose.

**Engaging Readers with Interesting Detail**

Hidi and Baird (1988) conducted a quantitative experiment investigating the effects of interesting detail on fourth and sixth grade children by looking at their rate of recall of expository text. Hidi and Baird revised the passages to include sentences based on attributes that provoked interest, believing that students were more interested in characters with whom they could identify and in life themes important to them. Hidi and Baird (1988) systematically inserted descriptive elaborations after important ideas. Their goal was to explain the main ideas. They wrote, “After the text stating that an inventor
has to have strong interest in what he is doing, we added, ‘Sometimes they became so interested they would forget to go home to eat dinner’” (p. 471).

Hidi and Baird (1988) conducted a content analysis of the sentences the children recalled immediately after they read the passages and one week later. (The authors did not describe the methodology for their analysis.) They found that the children recalled the interesting details in the passage on Edison’s life. But they did not generalize the actions and personal details to the recall of important scientific information. Hidi and Baird noted that the children “omitted any reference to the role of electricity in the creation of the telegraph although four sentences dealt with this aspect of the invention” (p. 475).

The importance of the relationships of electricity, the Morse code, and communication may have been too complex to explain in three or four sentences for children to understand the connections. The presumed focus in the readings of the Hidi and Baird (1988) study was the connection between the generation of electricity and Morse code. The interesting detail, however, concerned Edison’s early life as a boy and the inventor’s immersion in his work. Beck, McKeown, Sinatra, and Loxterman (1991) pointed out that a text is coherent to the extent that main ideas are explained sufficiently to make the connections clear for the reader. The Hidi and Baird study demonstrated what happens in a text where coherence is problematic; that is, interesting details do not explain the important ideas but become the central focus of what is learned from the text.

**Significance of Events**

Determining what is important and explaining why certain events, actions, and individuals are significant is one of the historian’s key tools. According to Seixas (1994), “Significance is the valuing criterion through which the historian assesses which pieces
of the entire possible corpus of the past can fit together into a meaningful and coherent story that is worthwhile” (p. 281). Seixas asked whether criterion for significance could be defined. “Perhaps phenomena that affect a large number of people in an important way and for a long period are significant” (p. 282). He argued that “local events and historical details also became significant when their relationships to larger phenomena are drawn or made explicit” (p. 282). In making small obscure events and situations rise to the level of significance, for instance, Seixas wrote that authors of history ask readers to draw their attention to fragments of reality that go unnoticed and yet “pose a series of questions for us” (p. 283).

In his study, Seixas (1994) asked fourteen tenth-grade children to rate their preferences for schools subjects and state reasons for the preferences. The questionnaire also asked children to list three events or developments of the last 500 years that, in their opinion, were the most important. In interviews Seixas (1994) found that children saw significance in a range of different terms. Several children perceived significance of events in terms of the masses of people involved while others judged an event’s worthiness on the basis of its contribution to understanding personal circumstances or family situations. Some children could not distinguish between concepts of importance and personal interest.

Other students spoke of importance in terms of learning lessons from the past and distinguishing themselves from others through knowledge of history; that is, they construed historical significance as analogy. Seixas (1994) reported one child saying, “It shows how it used to be, how racist people used to be with the slave trade and Indians, they didn’t give them any respect. You have to know what it’s like” (p. 295). The world
wars were designated as the most important events on the questionnaires. One child explained, “World War II established the downfall of the idea of fascism and to tell the world that this sort of idea is outdated” and then said, “You should understand the past to help you understand the present” (p. 295). Seixas noted that children with this position tended to see lessons as if history were now under control, that by learning from the past, people progressed. They believed that change happened all at once.

Seixas (1994) concluded that students’ historical meaning is oriented around using analogy and narrative to connect aspects of their own lives to the past. He wrote, “the events they conceive as significant along with their analogies and narrative constitute the schemata of their historical understanding” (p. 300). Crucial tasks in learning history would aim toward reasoning about which events were historically significant, and why, as well as expanding the range of historical events accessible to students. “Questions about historical meanings should be addressed explicitly and framed by debate” (p. 300).

Beck and McKeown (1994) revised a fifth grade history textbook so that background information was connected to important events and the importance of events was explained. They interviewed children at the beginning of the fifth grade and at the end of the year after they had used the revised texts. Beck and McKeown interviewed the same children at the end of the seventh grade to learn how their knowledge of particular historical events developed. Although the children gave more detailed accounts of the sequence of actions, the “versions of history they had developed lacked connections and motivations” (p. 253). Their understanding of consequences, outcomes, and significance of the events was absent from their accounts.
At the beginning of the fifth grade one child talked about the Revolutionary War. “It was between America and England and the French helped us, and we won, and the French gave us the Statue of Liberty.” At the end of the school year she said, “The Pilgrims were ruled by England. And anything that they tried to help their government, England would oppose. And England would pass all these acts—Parliament would—without even talking to the colonies... We got mad and the Boston Tea Party happened” (Beck & McKeown, 1994, p. 247). Although accounts of the older children were more detailed, Beck and McKeown noted their lack of a sense of consequence which suggested that learning how to build in implications of events requires more assistance than the revisions of textbooks. Revisions helped students remember the text, but did not help them create connections and determine implications and significance.

Assessment of Reliability: The Perceived Equality of Sources

Perfetti, Britt, Rouet, Georgi, and Mason (1994) based their study on undergraduate students' use of historical text on the causal model developed by Trabasso et al. (1984). Perfetti et al. (1994) found that the students learned the events quickly and built up a representation of the event with details. They wondered to what extent students could interpret the historical accounts. They were interested in the extent to which the students could detect author bias, handle inconsistencies among texts, detect the incompleteness of text, and resolve conflicting views. They found that the students read the stories, satisfied with the accounts of each version, without being aware they were missing information. "The results are in line with those of high school students who rated textbooks as the most trustworthy of documents" (Perfetti et al., 1994, p. 273). Students are not aware that a variety of evidence is entered into the historical account. However,
the students could detect author bias, but did not assess bias as they read. As one student said, “I only thought about bias when I was getting questioned” (p. 264). Although students noted that authors omitted knowledge, only one of the six students interviewed noticed that the author’s colorful language was a reason for judging a text as biased.

Perfetti et al. (1994) found intriguing results with the students’ resolution of conflicting sources. Students agreed with the most recently read document. “We found reasoning about the uncertainties of the story to be tentative and affected by the text read most recently” (p. 266). Perfetti et al. noted that students showed “little interest in the possible role that other documents might have in helping them come to conclusions” (p. 267).

Wineburg (1994) had a group of academic historians and high ability secondary students read a set of documents recounting the Battle of Lexington Green in the American Revolution. Wineburg found that the high school students read the documents from start to finish and read the source as one more thing to read, unlike the historians who read the sources first and then assessed the documents in light of the source. The students remembered the information of the text as they talked about them, without consideration of the sources. Whatever skepticism they may have expressed in reading a fictional document from an eye witness account was forgotten later in their discussion of the sources, whereas the historians thought first of the source and their assessment of reliability before discussing the information in the document. Whereas the historians in the study tended to go back and forth among the documents, rereading sections, thinking aloud about them and making connections with other documents, the students tended not to use a similar procedure. Students from elementary into high school learn history as


content knowledge, the facts of history, and do not learn from their books, the discipline-based knowledge of how historical accounts are developed. The work of Perfetti et al. (1994) demonstrates that with guidance students use “interpretive skills” of historical thinking as VanSledright and Kelly (1998) found with children. Their work, and that of the longitudinal study with elementary/middle school children Beck and McKeown (1994) undertook, suggest that learning the “interpretive skills” of historical thinking, and employing them, is not something learned in one unit, or one semester, or in the fifth grade. The focus on inquiry, placing the students in the middle of the picture, of assessing how authors gather and present information, is a long-term undertaking.

**Disciplinary Perspective and Historical Explanation**

In their interviews with children Levstik and Barton (1996) aimed to learn what children knew of historical events through their examination of photographs and illustrations. The children were asked to justify the order in which they put them. One of the children, puzzling about sequence, realized that two events could be happening at the same in two different places. She was the single student who had this insight. One takes a perspective on events, as the child has done, although most of the children puzzled about the sequence of particular ambiguous pictures and brought to bear their understanding of history on the solution to the problem. American history is frequently taught in a single chronological sequence of colonies, frontier, growth of the cities, for instance. How history gets taught is, in part, a function of how and how well teachers know their subject (Downey & Levstik, 1991). Wilson and Wineburg (1988) found that teachers trained in history have a large body of knowledge, but they had a vision that history was a human construction in which the historian tried to solve a puzzle. Wilson and Wineburg
conducted interviews with four elementary teachers, from different academic backgrounds, in the first year of their teaching career. Those with a history background were sensitive to multiple causation, the role of interpretation, and the value of seeing events in a broad context. Wilson and Wineburg compared the understanding of historical thinking among the teachers. The historian among the four teachers explained,

The making of history, the task of being a historian, involves clear thinking about argument and logic, about evidence, about how to split hairs sensibly... History is analytical in the sense that you go and break things down. It’s synthetic when you engage in the process of writing history. You take things apart and then you put them back together. You try to look for connections. You look for specifics, gather evidence, make general hypotheses. . . . Interpretation revolves around the classic questions in history, questions that weaves factual information into a complex and rich story. (pp. 528-529)

Just as history is a story with chronology, continuity, and change, it shows individuals acting and shaping the course of their affairs. They are agents who acted on motives and passions. Wilson and Wineburg (1988) explained that at the heart of historical inquiry lies the question of cause. But causation is an issue: “Single events occur for multiple reasons. Some causes rely on theories of human motivation and psychology. Causation becomes a problem to be pondered, argued, but never to be known with certainty” (p. 532). Within the references to people and events, historians “possess a rich set of explanatory themes and concepts on which they drew to make sense of the past” (p. 530). The teachers taught history from the perspectives they had. The
historian, interested in social and cultural history, introduced children to photographs, music, literature, newspaper articles, diaries and journals, the artifacts of individual people. The teacher with an archeological background had a different perspective on how historians work and what meaning is made of historical artifacts. The economist differed from the other teachers in his perspective on economic influences shaping historical motivations, actions, and consequences. Their differing perspectives to teaching and learning history are counterpoints to the elementary teacher who encouraged the students to assess the sources while working to amass information (VanSledright & Kelly, 1998), or the high school teacher who believed that older students could wrestle with issues of historical thinking because they had a body of content knowledge (VanSledright, 1996a).

Teachers who come from diverse backgrounds in teaching history meet children who come from equally diverse backgrounds. The crucial component of historical understanding is the understanding of the teachers (Dr. Anne Pooler, personal communication, September, 2000). Content and procedural knowledge are only two components of influences on how history is taught. The priorities of school administration and school boards influence how and what history is taught (Downey & Levstik, 1991). Those aspects of historical thinking "such as perspective taking, agency, and significance that interest researchers are likely to be perceived as threatening by policy makers" (Barton et al., 1996, p. 395). Downey and Levstik suggest that long-term, ethnographic study of practices in teaching history is a promising line of research. Study of how children demonstrate historical thinking is an avenue of investigation that draws upon the findings of research concerning children's learning procedures of historical thinking (VanSledright & Kelly, 1998; Wineburg, 1994) and children's expression of
their understanding of historical events (Barton & Levstik, 1996; Knight, 1989; Levstik & Barton, 1996).

Historical understanding depends on the particular, specific individuals doing specific things in a context of environment, relationships, and economic and political influences. The position that historical understanding is a rich set of explanatory themes set against a range of perspectives and cultural contexts is, itself, set in a context. It is partly a result of changes in the meaning of historical thinking over the last thirty years, influenced largely by the “thick description” inherent in ethnography and the kind of anthropological research exemplified by Clifford Geertz (1972, 1973). The perspective of the observer becomes part of the study, and the study is crafted around networks of individuals and the contexts for their actions. Historical understanding has been embedded in other theoretical frameworks over the period of the twentieth century (Dr. Martha McNamara, personal communication, September, 2000).

Questions Emerging from the Review

The review of the literature inspires new questions for research. Knight (1989) points out the effects of encouraging children to ask why people lived and acted as they did. What would be the influence on children’s discussion of why people lived and acted as they did when children have a rich context of place and detail that nonfiction literature can provide and when they have authors who puzzle over the same questions, as Fritz (1989) does in her biography of James Madison, or as Stanley (1998) does in her biography of Joan of Arc? The question of why applies to authors and students studying history. What would be the influence on children’s learning and inquiry when they have authors who explain how their interest in their subject has grown, as Meltzer (1992) does
in his history of the potato, or as Reich (1999) has done in her biography of Clara Schumann?

The research demonstrates that children from a young age develop historical thinking and have a sense of the procedures of historical thinking, such as discussion of alternative interpretations and the assessment of conflicting sources. How children come to this understanding is less well understood, and how nonfiction literature might promote thinking as an historian is largely unexplored. Students can be encouraged to assess differing perspectives but how they use the evidence they have to construct their accounts is a question for research and the extent to which authors of nonfiction literature discuss conflicting evidence in constructing their accounts is a question for this study. To what extent would reading several books about different places and people at a particular time contribute to children’s sense that not only is history interpretive, but events and ways of life totally different from one another can be occurring at the same time?

Historical nonfiction trade books have not been used in the studies of children’s growing sense of historical significance and their sense of what is important. How would children apply generalizations, or powerful ideas to think found in trade books, to other topics of interest? In terms of this study, how do authors talk about their powerful ideas?

Metadiscourse that Crismore (1984a, 1984b) searched for in textbooks and adult trade books may not only be present in the books of this study but also find new definition. An author, such as Fritz (1989) in her biography, The Great Little Madison, is apt to have ways of expressing emphasis differently from the terms and phrases that Crismore has used. Fritz exclaims over James Madison’s decisions about his studies at Princeton, and later, about his returning to politics. She writes, “Why else would he
decide to work so hard?” (p. 22). Or, “Besides, he had told them he had retired. And he
told them again” (p. 156). Evaluative metadiscourse also may find new expressions from
those discussed in the research literature. For example, in her biography, Joan of Arc,
Stanley (1998) writes, “What a terrible way to die!” as she describes the hours before
Joan’s death. In both cases emphatic and evaluative metadiscourse extends Crismore’s
definitions.

Where Crismore’s (1984a, 1984b) studies meet this study inspires a number of
questions. To what extent are the different categories of informational and attitudinal
metadiscourse present in the sample of books and how are the categories distributed? Is
attitudinal metadiscourse more prevalent at the end of the book and informational
metadiscourse at the beginning or are categories of metadiscourse distributed evenly
across a book? This study extends Paxton’s (1997) study with high school students in
which he investigated the influence of authorial voice on comprehension of their
textbooks. Paxton rewrote the text to demonstrate author presence. He noticed that the
students questioned the text with authorial voice and became more critical of the content.
To what extent do trade books, written for younger children, demonstrate author
presence? How author presence in trade books encourages children to question the author
and how it aids comprehension of content is an extension of Paxton’s work.

If the books in this study demonstrate that major ideas have supporting and
connected information, and that major ideas are stated and reiterated through the book, as
qualities Kintsch, Kominsky, Streby, McKoon, and Keenan (1975) found enhanced
recall, then the books in this study have implications for helping students comprehend
what they read. What is children’s comprehension of content when they read trade books? What else is comprehended besides recall of information?

Trade books demonstrating the characteristics that Beck, McKeown, and Gromoll (1989) found important to children’s construction of accounts provide teachers with resources for showing children how ideas are connected and how authors explain significance. That is, high quality nonfiction trade books may be good resources for building disciplinary knowledge. How does the use of nonfiction trade books influence the way teachers help children learn history? With these resources, teachers can help children discern and discuss powerful, recurring big ideas and the information connected to them. They look with the students at the beginning and the back to see how authors present their generalizations and conclusions, or state and restate themes. This means that the perspective and focus of the teacher is key to the effect of the resources in promoting comprehension. In terms of this study, how do authors present perspective and focus?

Authors of trade books focus on a few individuals or a particular situation as they develop their accounts rather than discuss a sweeping survey of historical events and actors. That is, they provide detail of setting, explanations of relationships of central individuals to colleagues and friends as Fraser (1995) does in her book *In Search of the Grand Canyon: Down the Colorado with John Wesley Powell*. She explains John Wesley Powell’s relationship with his crew and gives examples of his regard and respect. What is the influence of in-depth interdisciplinary study of one event, or person on a child’s learning about other events and individuals? That is, under what circumstances is disciplinary knowledge, such as the examination of author presence, or the elaboration of generalizations, transferable? Encouraging children to participate in disciplinary study,
such as examining motive and causality, or connecting information with ideas thought to be important has precedent in the research literature. Applying the work to the use of nonfiction trade books presents new avenues of research. These questions are beyond the study of a sample of books, but they suggest future purpose for exploring characteristics of books that are coherent.

The extent to which the use of children’s nonfiction trade books help students learn how historians think and work is not present in the research literature. Researchers have investigated the perceptions that children, different ages, have of historical events (Barton & Levstik, 1996) and they have interviewed children in a longitudinal study (Beck & McKeown, 1994). But the influence of nonfiction literature on children’s historical understanding when tracked over a long period is a question emerging from the literature. How read aloud sessions emphasizing causality, author perspective, dealing with conflicting sources, or the effect of primary sources, influences children’s reading, talking about, and writing historical accounts is a focus of study. Primary sources and multiple documents comprise material used in the research literature to examine students’ historical understanding, but pursuing a line of inquiry using books that show how writers of historical accounts work, starts where the research literature leaves off.

Wineburg (1991) presented documents, including illustrations, to students to interpret, but how authors who demonstrated this process of puzzling over conflicting evidence would influence students’ thinking is an open question. And more importantly, how children transfer what they find in nonfiction literature to their writing and to other texts, when this kind of discussion takes place in the classroom, are also questions that emerge from the literature. The study of books in the sample can provide resources to
explore such questions with children. Where picture books show authors puzzling over sources, younger children have a head start in seeing how historians think. A new body of evidence might emerge from studies with children who use nonfiction literature where authors engage in historical thinking.

**General Characteristics of Coherence**

The research literature on coherence might be conceptualized in terms of three broad areas. These three broad areas give an overview of coherence in the literature:

- Coherence as a function of contextualization, interrelationships, and metadiscourse.

Table 1 presents these broad areas. The characteristics in bold print represent disciplinary coherence of historical thinking and learning. The items, printed in bold, with asterisks are the characteristics toward which the content analysis is directed. General characteristics are the basis for the categories in the content analysis.

Table 1.

**Characteristics of Coherence in Historical Nonfiction Text**

<table>
<thead>
<tr>
<th>Contextualization</th>
<th>Interrelationships</th>
<th>Metadiscourse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Topics.</td>
<td>*Generalizations and supporting content</td>
<td>*Informational:</td>
</tr>
<tr>
<td>Background Information.</td>
<td>*Causal explanations and their significance</td>
<td>Goals</td>
</tr>
<tr>
<td>*Vocabulary</td>
<td>Coherence in Sentences.</td>
<td>Preplanning</td>
</tr>
<tr>
<td>*Perspective</td>
<td>Coherence in Paragraphs.</td>
<td>Post planning</td>
</tr>
<tr>
<td>*Primary sources</td>
<td>*Relationships between text and visuals (e.g., Maps, graphs, illustrations, sidebars and inserted boxes).</td>
<td>Topic signals</td>
</tr>
<tr>
<td>*Conflicting sources</td>
<td>Relationships between ideas and information presented.</td>
<td>*Attitudinal:</td>
</tr>
<tr>
<td>*Alternative interpretations</td>
<td></td>
<td>Salience</td>
</tr>
<tr>
<td>Sense of time.</td>
<td></td>
<td>Emphasis</td>
</tr>
<tr>
<td>Visuals</td>
<td></td>
<td>Hedging</td>
</tr>
<tr>
<td>Titles, headings.</td>
<td></td>
<td>Evaluative</td>
</tr>
<tr>
<td>*Socio-cultural Identification</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


If the figure were three dimensional, the three areas of coherence would overlap. For instance, in metadiscourse, the author might explain that the events in his account happened at the same time in different places and thereby establish a context for the account. Also, visuals can provide context for the text (Bransford & Johnson, 1973).

However, an author might discuss the relationship of the visuals, for instance, a photograph and a drawing, in relation to the text, as Giblin (1993) does in Be Seated: A Book About Chairs. Making definitions discrete and operational in terms of content analysis is part of the methodology of the study.

The three categories were expanded in the four research instruments for this content analysis because certain characteristics go together naturally. For instance, the Domain Knowledge Research Instrument pertained to specific tools of historical thinking found in the research literature. How, and whether or not, the author commented on the reliability and character of the sources she used or resolved conflicting evidence were part of the domain knowledge. Yet, for purposes of general coherence the author’s comments on her sources contextualized the material that she includes in the information. An example of such contextualizing is found in Clara Schumann: Piano Virtuoso (Reich, 1999). The author refers frequently to Clara’s diary, and at one point explains that her father wrote the diary when Clara was a child. Reich explains that he continued to make contributions to it until Clara was a young woman of sixteen so the contents of the diary reflect what Clara’s father wanted her to do and think.

In Table 1 the category of coherence as interrelationships includes a set of subcategories. The research instruments were designed to collect data on generalizations
and causal explanations separately because, from the literature on coherence and historical thinking, these characteristics are critical to children's learning and understanding of historical content. The category, contextualization subsumed a set of categories. These categories appeared particularly subjective in that sufficient background knowledge depends on the interaction between reader and the reader's purpose, on the one hand, and topic and author purpose and perspective on the other. However, vocabulary has been considered a critical factor in the construction of coherence and this was included in the instrument. Finally, the category of metadiscourse had two subcategories.

**Summary**

This chapter has surveyed the literature on coherence in text in two parts. The first part looked at the literature on coherence as it has been investigated by researchers interested in reading processes, schema theory, and comprehensibility of text. The research has involved how readers have demonstrated comprehension of both narrative and informational text. Key elements of coherence are that information is connected in networks from the sentence, to the paragraph, and to longer passages. Words and ideas are repeated or restated, and elaborative information is added. The interrelationships of information means that they are connected by ideas as well as more explicit signals, such as headings. As much as they have been concerned about the structure of content, such as transitional words and phrases, researchers have also investigated the role of prior knowledge readers bring to reading about specific content as well as knowledge about how narrative or informational text works.
The second part of the review concerned historical thinking and understanding in children. Background information, connecting ideas, the interrelationships of events, motivations, and consequences are the beginning of what is critical in learning to think like historians. Researchers have looked at the specific cognitive demands of learning history and have investigated how children learn and demonstrate the tasks that historians undertake. Authors of historical accounts, and historians, assess perspective, their own as well as the perspective of the sources of the documents, and the extent to which perspective influences the text. They identify and resolve conflicting sources, and develop the theoretical alternative interpretations. They envision contexts for the events explained in historical documents as well as the context in which the documents was written. They construct accounts on the basis of the evidence in a variety of sources and conceive of large, overarching ideas that animate it, and give it meaning.

The research has shown the extent to which children and older students demonstrate the tools of the historian. The research has been carried out with text books as well as trade books, multiple documents, and photographs. Children encounter historical study periodically during their school careers from elementary through secondary school. Their sense of what they learn is in terms of the amount of information they have gathered, and it is often vague and general. But, children learn at an early age processes of historical thinking even as they are developing a body of historical knowledge. And, children have insights about the nature of historical accounts as they ponder historical information. The research suggests that learning to think as an historian is a long-term endeavor over the school career. Children who read connected text that provides sufficient background information for causal explanations, tend to
remember content better than children who do not experience connected text. Without the ongoing practice of the specialized cognitive processes of the historian, their knowledge and their construction of meaning becomes “paste up accounts” that contain misconceptions and conflations of information across historical periods. Where children have learned history by using documents, they have assessed the reliability of the sources and the perspective of the authors.

The third section concerns questions that have emerged from the review of the literature. What would be the effects of emphasis on the process of historical thinking in historical inquiry? What would be the effects of using books that demonstrate how authors do historical research? What would be the effects on children’s talking about historical documents and information, when they are the center of the picture in historical investigation, over a long period? The research literature of the last decade has indicated the presence of avenues for further research. The fourth section gives an overview of characteristics of coherence that have emerged from the research literature.

The definitions of the categories, which become the variables in the study, are drawn from the literature on coherence and the particularly disciplinary coherence of historical thinking and understanding. The research instruments were designed to measure the variables in the investigation of Orbis Pictus books. The next chapter explains the methodology of the investigation. It starts with an overview to content analysis and then explains the process of determining the size of the sample and the length of the passages analyzed. It also presents the summary and results of the interrater reliability study. Finally, the chapter presents examples of the procedures for analysis and the research hypotheses that addressed the research questions and that the study tested.
CHAPTER IV

METHODOLOGY

This descriptive study was designed to abstract\(^1\) from children's nonfiction literature certain characteristics of coherence that pertained to historical nonfiction and biography in a selection of *Orbis Pictus* books. A content analysis was the methodology for the research. This chapter includes an overview of content analysis, an explanation of sample selection and research instruments, a discussion of the inter-rater reliability study, and explanation of coding procedures and treatment of the data.

**Overview of the Content Analysis**

Berelson (1971) defines content analysis as “a research technique for the objective, systematic, and quantitative description of the manifest content of communication” (p. 18). He explains manifest in the following terms. Content analysis is ordinarily limited to the syntactic and semantic content and not latent intentions which the content may express or latent responses it may elicit. The requirement of systematic means that all of the relevant content is to be analyzed in terms of the categories for the problem at hand. The results of content analysis must have a measure of general application. Quantification is perhaps the most distinctive feature of content analysis. Its primary interest is the “extent to which analytic categories appear in the content, that is, the relative emphases and omissions” (p. 17).

The definition Berelson synthesized is the foundation in the literature on content analysis (Carney, 1961; Holsti, 1969), in textbooks on educational research (cf. Gall, 1971), in sales of contemporary realistic fiction written for children and young adults.

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\(^1\) The term “abstract” is found in Salesi (1977). The term referred to the conceptualization of a content analysis of contemporary realistic fiction written for children and young adults.
Borg, & Gall, 1996), and in the textbooks of behavioral and statistical research (Kerlinger, 1986). Holsti (1969) provided a variant to the definition. “Content analysis is a phase of information-processing in which communication content is transformed, through objective and systematic application of categorization rules, into data that can be summarized and compared” (p 3). He viewed content analysis as “a basic research tool which may be useful in various disciplines and for many classes of research problems” (p. 3). Regarding Berelson’s (1971) definition, Carney (1961) notes the definition is minimal. He writes, “Content analysis is not just a frequency count . . . much pattern fitting is currently practiced. Pattern-fitting involves comparing a complex set of interrelated words or views with various other model sets, to identify a mode of perception or reasoning” (p. 25). Krippendorf (1980) refines the Berelson definition. He writes, “Content analysis is a research technique for making replicable and valid inferences from data to their context” (p. 21). He notes that communication does not have a single meaning, “someone makes inferences from data to their context” (p. 23).

Krippendorf (1980) challenges Holsti’s (1969) definition. He writes that Holsti’s definition recognizes the inferential nature of identifying the forms of ideas, values, and attitudes to which content analysis attends, but it needs to make “explicit the importance of relating the classification, categorization, and frequency counts of these forms to other phenomena” (Krippendorf, 1980, p. 23). Content analysis needs to be “predictive of something that is observable in principle, to aid decision making, or to help conceptualize the portion of reality that gave rise to the analyzed task” (p. 23). Kerlinger (1986) emphasizes the measurement of variables and writes, “Content analysis is considered as primarily a method of observation and measurement. Instead of observing people’s
behavior directly, the investigator takes the communications that people have produced
and asks questions of the communications" (p. 477). The synthesis of these definitions
provide flexibility in the research. They provide a defense for the present study, in that it
intends to extract and analyze certain characteristics of coherence in children’s nonfiction
literature that contributes to a perspective in selecting and using historical nonfiction
books.

**Research Design**

This section presents an overview of the methodology for measuring the variables
that address the research questions of this study. This section includes a discussion of the
three types of content analysis and the criteria for book selection and size of the content
analyzed.

Holsti (1969) says that three types of comparisons may be made when content
analysis is used to describe and compare attributes in them. The analyst compares
multiple documents or books from a single author in one or several ways, from which the
analyst draws inferences about trends. The analysis of one variable found in the books of
one author is an example of this type. The instances that an author includes both name
and description of primary sources in multiple texts is an example of the application of
this type of content analysis.

The second type is a comparative analysis in which the design is based on the
relationship of two or more variables within a set of documents by one author or the
design is based on a comparison of one variable in documents produced by two or more
authors. Where two or more authors are included in the design, Holsti (1969) writes,
“Usually the purpose is to relate theoretically significant attributes of communicators to
differences in the messages they produce” (p. 31). The instances that an author includes both hedging and emphatic metadiscourse in multiple texts is an example of the application of this type. Or, the instances that two authors engage in both hedging and emphatic metadiscourse in their books is another form of this type of comparative analysis.

The third type of design is where content data may be compared to some standard of adequacy or performance (Holsti, 1969). The standard may be a priori against which documents are compared, but an alternative to the deductive approach is to derive standards inductively from content data. Holsti writes, “A representative sample of messages produced by a class of communicators may provide norms against which the products of any single communicator may be compared” (p. 31). For the purposes of this study of children’s historical nonfiction, message is synonymous with text, or passage, and the term communicators is synonymous with authors.

The design of this study is a combination of the first and second types of comparison comparing one or more variables across multiple authors and their texts. The study is exploratory in that it is not based on standards of coherence in trade books for children. In the following sections of this chapter is a discussion of the determination of the books in the sample and the length of passages for the analysis. Then, a discussion of the instruments and the inter-rater reliability study describe the categories for sampling. The final section is a discussion of the procedures.

**Selection of the Books**

Since the sample was a selection of the Orbis Pictus notable historical nonfiction, clearly defined criteria for the selection of books separated those that are strictly
historical from those that appeared interdisciplinary. For instance, The Planet Hunters
(Fradin, 1999) is about astronomy, but is also a history of the discovery of the outer
planets. It includes primary source materials of letters, journals, and interviews. Selection
of books in the sample were based on the Library of Congress classification, “history,” or
“biography.”

The sample included books from 1989 to 1994, the period encompassing the years
the Orbis Pictus Award has been given. The Orbis Pictus Award is given annually to
books judged to be excellent by the National Council of Teachers of English. The
determination of excellence is based on four criteria, accuracy, organization, design, and
style. These criteria are discussed in Chapter II, The Definition of Terms.

The books in the study were selected on the basis of being less than ninety pages
and more than ninety pages. Within the second category a further differentiation was
made between books from 90 to 150 pages and books over 150 pages, in order to insure a
representative selection of books of varying lengths. The research questions concerned
the presence of coherence across the length of books a range of book lengths would show
instances of coherence in both short and long books. Also, the selection was based on the
proportional representation of the lengths of books in the Orbis Pictus list. Finally, the
age level for which books were intended was considered in order to find out the extent to
which coherence is present in books for younger children.

**Criteria for Determining the Size of the Sample**

In order to make statements about the validity of the hypotheses developed from
the research questions, the literature on statistical power was a reference point (Minium,
Clarke, & Coladarci, 1999). They write, “The power of a statistical test is the probability,
given that the null hypothesis is false, of obtaining sample results that will lead to the rejection of the null hypothesis” (p. 309). That is, a powerful test “is one that has a high probability of claiming that a difference exists when it really does” (p. 309). When the null hypothesis is false it is false by some degree so uncovering the differences in means (or correlations between variables) is easier when the differences (or correlations) are large than when they are small. A second factor involved in statistical power is the effect size which demonstrates the degree to which two variables are correlated in the population of variables. The larger the effect size, the more powerful the test. Regarding the differences in the correlations of two variables, Minium, Clarke, and Coladarci write, “You want to have a greater chance of rejecting the null hypothesis for differences that are large enough to be important than for those so small as to be negligible” (p. 313). Another factor is the sample size. “Sample means tend to reflect the population means, particularly where the number in the sample is large” (p. 313). Therefore, with a power of at least .75, and an effect size of .40, thirty-two books were needed in the sample. This number of books allowed for an even proportion across the two types of books, before 1994 and after 1994, for a total of four general categories in the sample: historical nonfiction before and after 1994 and biography before and after 1994. Within each category a proportional number of books represented those that were less than ninety pages and those that were more than ninety pages long. Table 2 shows the range of historical nonfiction and biography from which selection of books for the study was made.

A total of 102 books from the Orbis Pictus list include 48 biographies or and 54 other historical nonfiction. Of the books that were less than ninety pages, 20 were
biography and 23 were other historical nonfiction. Of the books that were more than ninety pages, 14 books were biography up to 150 pages long, and 14 books were longer than 150 pages. Of the other historical nonfiction books that were more than ninety pages long, 20 books were up to 150 pages and 11 books were more than 150 pages.

Table 2.

**Summary of Biography and Historical Nonfiction in the Orbis Pictus List, 1989-2000**

<table>
<thead>
<tr>
<th></th>
<th>Books Ninety Pages Or Less</th>
<th>Books Longer than Ninety Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 20)</td>
<td>(N = 14)</td>
</tr>
<tr>
<td>Biography (N = 48)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Books Published before 1994</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Books Published after 1994</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Other Historical Nonfiction (N = 54)</td>
<td>(N = 23)</td>
<td>(N = 20)</td>
</tr>
<tr>
<td>Books Published before 1994</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Books Published after 1994</td>
<td>11</td>
<td>9</td>
</tr>
</tbody>
</table>

From this body of books, thirty-two were selected, sixteen biographies and sixteen books of historical nonfiction. Twelve of the thirty-two books were published
before 1994. Sixteen of the books were ninety pages or less. (See Appendix A for the Orbis Pictus Award list of biography and historical nonfiction, 1989-2000.)

**Determination of the Passage Length for Sampling**

**Overview.** Before the words in each book were counted, the first reading included all material at the beginning and end of the book, chapter and section headings, and the captions for illustrations. An average of words per line was computed on the basis of forty lines of running text, selected from throughout the book. Where column sizes differed, separate averages were computed for those pages. Each page had to be examined because pages of nonfiction are not formatted the same way. While many pages are text rich, others are full of illustrations and diagrams. After counting and recording the lines for each page, for the particular column size, the total number of words in the book were computed.

Captions were coded for elaboration and support of vocabulary, causal explanations, and generalizations. Titles and section headings, diagrams, and photographs were included because the literature suggests that these textual devices contribute to coherence (Anderson & Armbruster, 1984). Front matter such as introduction, preface, or table of contents and/or end matter such as, outlines, reference lists, and time lines were coded as binary variables. Using this procedure, overall coherence in relation to whether the book had front and end matter could be calculated.

**Determination of the Length of Passages.** The baseline of 1000 words for a passage was derived from the literature on content analysis comparing textbooks with trade books (Crismore, 1983, 1984a). However, coding three, 1000 word passages in a book of 7000 words, such as *Bound for America: The Forced Migration of Africans to*
the New World (Haskins & Benson, 1999), or a 9000 word book, such as Joan of Arc (Stanley, 1999), provides a different sampling of the book compared to three, 1000 word passages in a longer, 15,000 word book, such as Be Seated: A Book About Chairs (Giblin, 1993). The one in three ratio for words coded in the shorter books represented much more of the text than the one to five, or one to forty-five ratio of a longer book, such as Fiery Vision: The Life and Death of John Brown (Cox, 1997). Because disciplinary coherence was the focus of the study, a proportional number of words to total words in a book was preferable to a fixed number. However, this decision was made after a study of the research literature. Its course is the subject of the following discussion.

In coding and analyzing thirty-two books, the question of how much sampling within each book was enough to give a representation of coherence in the book was a significant one. Crismore (1983, 1984a) provided a methodology to analyze non-thematic characteristics in passages of multiple texts. In her study, she developed a comprehensive typology for the categories of metadiscourse as the characteristic she argued was significant in understanding historical material. She compared the evidence of metadiscourse in a selection of textbooks, atypical textbooks, and adult trade books. Crismore did not explain the proportion of numbers of words to the total of words in the books she selected, although she designated the numbers of words in a passage. She did not explain where the passages appeared in the books. However, she listed the total number of words in each book and the total of words for each of the three types of books she examined.

Crismore's methodology was replicated to the extent that authors evaluated books for particular content, basing their analyses on discrete passages (Aikman & O'Hear,
rather than basing their analyses on certain content scattered through out the book (Cheevakumjorn, 1998; Chiapetta, Fillman, & Sethna, 1993; Hurley, Rawlins, & Chadwick, 1998). Garcia (1985) evaluated the portrayal of white ethnic American immigrants in history textbooks and later Garcia and Tanner (1986) altered the categories in their analysis of the description of black American immigrants in textbooks. Haas (1991) based an evaluation of the frequency and continuity of concepts in primary social studies books germane to the curriculum, such as, “needs,” “resources,” and “rules.” Aikman and O’Hear (1997) looked for different ways “main ideas statements” were presented in essays. And McCabe (1993) was interested in analyzing social studies textbooks for their “considerateness,” defined by connectedness of the text, connected illustrations and readability.

In terms of the amount of content analyzed, Chiapetta, Sethna, and Fillman (1993) examined “random samples of the whole textbook” (p. 789). They then examined the “entire first section of each textbook regarding its treatment of the themes in science and how it treated the nature of science” (p. 789). Their content amounted to “5% of five middle school life science textbooks and the whole chapters specifically devoted to ‘What is science?’” (Wang, 1998, p. 9). Their study was an example of selective sampling of a number of words in a passage proportional to the total number of words in books of differing lengths.

Like the categories of Chiapetta, Sethna and Fillman (1993), in his examination of books for their “considerateness,” McCabe (1993) decided on a discrete passage size for analysis. He selected passages of at least one hundred words from five fifth-grade social studies textbooks because that number of words was the minimum amount necessary for
analysis involving readability formulas. His four categories of analysis were the connectedness of the text, the presence of illustrations and pictures near the relevant text, subtitles that "genuinely predict what is coming in the text" (p. 131), and the readability level. The passages for analysis had to deal with the same topic. He based his decision on findings of Irwin (1986) who noted that topic variation may have influenced the results of her investigation. Although he used passages of at least one hundred words McCabe does not explain the range of specific lengths or the number of passages from a book. McCabe tried to control for topic in textbooks which is difficult in an analysis of trade books because authors are diverse in their choice of topic and perspective.

In other studies researchers handled passage length as McCabe (1993) had done. In a study of the effects of the author's voice on women's reading of two statistics books, one with an invisible author and one with a visible author, Nolen (1997) noted that "participants read a short but cohesive segment of an intact text" before they were "prompted to tell the interviewer what they are thinking and feeling" (p. 49). Paxton (1997) chose two passages, one of 504 words from a book related to world history, composed by an anonymous author, and one passage of 655 words, which he wrote and defined as having a visible author. In their studies Nolen and Paxton intended to explore the relative effects and influences of the texts on students as they used the books.

These studies in content analysis provided guidance but not answers. The writing of nonfiction trade books is different from the writing in textbooks that meet the curricular standards required of developers. In nonfiction trade books one author constructs a narrative from a perspective born of purpose, personal experience, and
research. Authors do not necessarily aim to meet curricular expectations in writing their accounts.

From the research literature on content analysis of textbooks in science and social studies (Wade, 1993; Wang, 1998) one outstanding quality is that authors use a range of methodological approaches and do not necessarily explain the details of their selection and analysis. Crismore (1984a) explained that she analyzed one thousand word passages of textbooks and trade books to find evidence of the author’s metadiscourse. Was the passage randomly chosen from the book? Was it taken from the beginning, or from the end? With books of differing lengths, what was the justification of using a constant passage length?

In a study of how nineteenth century authors crafted “main idea statements,” Aikman and O’Hear (1997) wrote, “We required essays of at least thirty paragraphs to provide a substantial piece of an author’s work” (p. 191). Extensive quotes from other sources in any one essay were not counted because they were not the words of the essay’s author. In analyzing books, Aikman and O’Hear selected “a chapter near the middle” (p. 194). In this study of Orbis Pictus books, primary sources were included in the word count because they were part of the text and because the study was about the coherence of features, such as how primary sources are integrated into the text as supporting or as new information. Students would read them in relation to the meaning of the entire text. Although Aikman and O’Hear did not provide reasons for other decisions they justify their procedures, especially for their reliability study, on those validated by the research procedures for content analysis in an earlier edition of Gall, Borg, and Gall (1996), one of the resources in the design of the content analysis of Orbis Pictus books.
Brophy (1990) analyzed five elementary textbooks for understanding of concepts and higher order applications. The Brophy study is one example where he guided the reader through the process of designing and carrying out his content analysis. He explained that in order to analyze textbooks for concepts and higher order applications, he developed questions with his colleagues based on the literature related to social studies standards for teaching and outcomes for learning. He read all the books, making preliminary notes on his observations, and then studied the books in three stages, coding for different content. At each stage Brophy had a different purpose for questioning the book. He then focused on specific books and on particular units in those books because of their significance to researchers and teachers he and colleagues consulted. The process became refined during the inter-rater reliability study, when the raters found that reading the passages multiple times focusing on content relevant to each instrument. Finally, that raters found that even the analysis of passages on the basis of one instrument required multiple readings in order to gather thorough data.

Although textbook analysts used procedural criteria, such as, the extent to which science books included principles and practices of scientific investigation, studies have been devoted to conceptual or thematic content. But the work of Brophy (1990), with textbooks, and Crismore (1983, 1984a), with her comparative study of textbooks and trade books, provided a foundation for observing how authors (or textbook developers) include material that promoted disciplinary thinking and learning. A detailed discussion of the process for determining the categories of the study and the criteria for sampling each book is found in the Essay on Methodology. (See Appendix B).
The Research Instruments

The most critical and challenging part of the content analysis was the designation of a system of categories for the research instruments, for they were the conceptual scheme of the study (Budd, Thorp, & Donohew, 1967; Holsti, 1969). The categories determine the quality of the content analysis (Berelson, 1971). Where the categories are variables; they are linked to the problem and theories on which the research is based and differentiate the content being described (Budd et al., 1967).

Categories of Analysis

The categories in this study were defined in terms of the research problem. Four factors were weighed in deciding upon categories. They needed to reflect the purposes of the research; they needed to be exhaustive; they needed to be mutually exclusive and independent; and they were derived from a single classification principle. The categories became the variables in the four research instruments. They were called the Contextualization Research Instrument, the Domain Knowledge Research Instrument, the Interrelationships Instrument, and the Integration of Primary Sources Research Instrument. Examples of these instruments are presented in Tables 3 through 6.

The three passages of each book were analyzed with a focus on each research instrument, one at a time, in sequence. This procedure was similar to Brophy’s (1990) content analysis of text books. In his study he questioned the text with one focus at a time. Cross checking the instruments for captions, insured they were coded once.
Table 3. (Continued)

<table>
<thead>
<tr>
<th>Page No. and para</th>
<th>Vocabulary</th>
<th>Metadiscourse</th>
<th>Captions* Related to Running Text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Explicit</td>
<td>Information</td>
<td>Attitude</td>
</tr>
<tr>
<td>Position</td>
<td>Form</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Illustrations which had been included in the original design of the study and in inter-rater reliability study were deleted from subsequent analysis because of the results of the inter-rater reliability study.
Table 4. (Continued)

<table>
<thead>
<tr>
<th>P. no. and para.</th>
<th>Perspective Of the Author</th>
<th>Textual and Historical Generalization</th>
<th>Author's comments on the Source Reliability</th>
<th>Author's Dealing With conflicting Sources</th>
<th>Author's comment on Alternative Interps.</th>
<th>Socio-cultural Identification</th>
<th>Captions* related to Running Text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>P + # Elab S Y N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>El Restate Diff #</td>
</tr>
</tbody>
</table>
| I N T            |                           |                                       |                                             |                                           |                                        |                               |                                  | 137

*Illustrations which had been included in the original design of the study and in inter-rater reliability study were deleted from subsequent analysis because of the results of the inter-rater reliability study.
Table 5. (Continued)

<table>
<thead>
<tr>
<th>Page no. and para.</th>
<th>Level of explanation</th>
<th>Description of Individual</th>
<th>Explanation of motives</th>
<th>Explanation of consequences</th>
<th>Explanation of significance of event to account</th>
<th>Causal Explanation elaborates on Generalization</th>
<th>Captions* Related to Running Text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W/in Page</td>
<td>Page</td>
<td>Across page</td>
<td></td>
<td></td>
<td></td>
<td>Elab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Illustrations which had been included in the original design of the study and in inter-rater reliability study were deleted from subsequent analysis because of the results of the inter-rater reliability study.
Table 6.

Integration of Primary Sources Research Instrument

Name and Description of the source:
- Name and some description, a word, phrase, sentence is made about the person generating the source.

Name of the source:
- Name of a person is provided.
- Generic category is provided; e.g., one of the witnesses.

Category of the source:
- Quotation of the source.
- Paraphrase of the source.
- Citation of the source, date, page numbers.

The Use of the source:
Elaborates on information that relates to: gen (generalizations); ce (causal explanations); ot (other)
Gives necessary information that relates to: gen (generalizations); ce (causal explanations); ot (other)

Length of passage:
- Number of words in the quotation or the paraphrase.

Nature of Connection:
- Transitional phrase or sentence between the running text and the quotation or paraphrase.
- The quotation or paraphrase restates the running text.
- The quotation or paraphrase provides new information not in the running text.

Successful Use:
- Criteria, outlined in Operational Definitions, are met.

Unsuccessful Use:
- Criteria, outlined in Operational Definitions, are not met.
Table 6. (Continued)

<table>
<thead>
<tr>
<th>Source</th>
<th>The use of Primary Resources</th>
<th>Nature of Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page no. and para.</td>
<td>Name and description of source</td>
<td>Name</td>
</tr>
<tr>
<td>quo</td>
<td>para</td>
<td>cit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In the Domain Knowledge Research Instrument, presented in Table 4, author perspective was the subject of one reading. In the next reading the generalizations and supporting facts were the focus of the coding, then the discussion of source reliability, conflicting sources, and alternative interpretation. Where generalizations and explanations had connecting facts that were outside the passages being analyzed, these facts were coded as a separate variable. Socio-cultural identification was coded separately from the other variables. The reason for this refinement in the coding of text was to insure careful examination of the passages for the variables in the research instruments. In the Interrelationships Research Instrument, Table 5, and the Integration of Primary Sources Research Instrument, Table 6, the variables were more related to one another than in the other two instruments. For instance, where a name and description of a primary source was given, the source was quoted or paraphrased. Similarly, with causal explanations the description of individuals, motivations, and consequences were all related variables coded during the same reading.

**The Inter-rater Reliability Study**

To refine category definitions and procedures for using the research instruments and to establish instrument reliability, a reliability study was conducted. Since text can be coded more than one way (Krippendorf, 1980), having criteria clearly defined and elaborated is critical for inter-rater reliability. Krippendorff uses the term intercoder rather than inter-rater in writing, "Inter-coder reliability is the degree to which a process can be recreated under varying circumstances, at different locations, using different coders" (p. 131). Disagreements result from inconsistencies within one coder/observer as well as among coders/observers. Weber (1990) notes that reliability should be calculated
before these disagreements are resolved. An appropriate coefficient is not a fixed number. Whether or not the value is sufficient depends on the study, the material used, and the categories (Krippendorf, 1980). For the purposes of this study a coefficient of .75 or higher was thought to be acceptable, because analysis of the content needed to be generalizable to other books.

The principle investigator identified two books that represented the categories in the four research instruments, Bound for America: The Forced Migration of Africans to the New World (Haskins & Benson, 1999) and Joan of Arc (Stanley, 1998). A second rater was chosen for her competence in children’s literature. A former librarian, she is a professor in the College of Education and Human Development, at the University of Maine, Orono. She was supplied with the research instruments that the principle investigator had developed and used in earlier analyses. She was given instructions and the written definitions. Following the practice session, the second rater independently conducted her analysis of the three passages of the two books.

**Categories in the reliability study.** Sixty-two variables were in the reliability study. Seven of these variables, two in vocabulary, two in metadiscourse, and level of generalization, structure of supporting facts, and socio-cultural identification had embedded variables. In vocabulary, the item, “Position” (of the term) had within it five variables, adjacent, distant, inserted boxes, highlighted terms in the glossary, and glossary terms. The variable referred to as “Form” had within it three variables synonym, contrast, and inference. In metadiscourse, the variable referred to as “Information” had within it four variables, goal statements, preplans, postplans, and topicalizers. The metadiscourse variable referred to as “Attitude” had within it four variables, salience,
hedging, emphatics, and evaluation. Level of generalization included “within the page,” “page length,” and “across the page generalizations.” Structure of facts included explanation, description, narrative, and other. The variable socio-cultural identification had within it, gender, age, ethnicity, race, religion, and socio-economic status. When these twenty-nine embedded variables are counted along with the sixty-two variables listed, the total number of variables in the reliability study was ninety-one.

Table 7 presents the summary of the inter-raters’ analysis of two books. The overall proportion was higher than the agreed upon level for acceptance for the study, a reliability coefficient of .75. The coefficients of particular variables and subvariables were lower than the agreed upon level of acceptance. The detailed analysis of each discrepancy, how it was resolved, and what the revised percentage of agreement upon resolution was documented. (See Appendix C for the detailed analysis of the individual items of each research instrument used to analyze content from two books in the inter-rater reliability study).

Table 7 shows the coefficients for each category in three passages for each book. The table is organized in four sections that represent the four research instruments in the study. At the end of each section is a reliability coefficient, or proportion of agreement, for that section. At the end of the table are the final proportions for each book and the proportion of the two books together.

After the two raters had coded the content, the percentage agreement for each category was calculated. Where the raters were not in agreement, discussion revealed the source of the disagreement and the percentage was corrected.
Table 7.

Summary of Inter-rater Reliability Study

<table>
<thead>
<tr>
<th>Variables</th>
<th>Book #1 Bound for America: The Forced Migration of Africans to the New World (Haskins &amp; Benson, 1999)</th>
<th>Book #2 Joan of Arc (Stanley, 1998)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pass #1</td>
<td>Pass #2</td>
</tr>
<tr>
<td><strong>Pass = Passage, Prop = Proportion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1. Contextualization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocabulary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position squared</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td>Form</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Metadiscourse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informational third</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Attitudinal</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Illustrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of illustrations</td>
<td>1.</td>
<td>.33</td>
</tr>
<tr>
<td>Elaborates on Information</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Gives New Information</td>
<td>1.</td>
<td>.5</td>
</tr>
<tr>
<td>Restates Information</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Captions for Illustrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of captions</td>
<td>1.</td>
<td>.33</td>
</tr>
<tr>
<td>Elaborates on Information in the text</td>
<td>1.</td>
<td>.1</td>
</tr>
<tr>
<td>Gives New Information</td>
<td>1.</td>
<td>.4</td>
</tr>
<tr>
<td>Captions Restate Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion for Contextualization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

2 Total scores for all five positions, and three forms, are represented in the proportions.
3 Total scores for the four types of informational and four types of attitudinal metadiscourse are represented in the proportions.
4 Because the extent to which interpretation could not be controlled for and definitions could not cover all contingencies, variables for illustrations were deleted from the research instruments.
5 Joan of Arc illustrations have no captions.
6 Elaborated and New were combined into one variable.
Table 7. (Continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Book #1: Bound For America</th>
<th>Book #2: Joan of Arc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass = Passage Prop = Proportion</td>
<td>Pass #1</td>
<td>Pass #2</td>
</tr>
<tr>
<td>2. Disciplinary Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perspective of the Author</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Generalizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Generalization</td>
<td>.57</td>
<td>.50</td>
</tr>
<tr>
<td>Number of Textual Generalizations with Supporting Facts</td>
<td>.71</td>
<td>.5</td>
</tr>
<tr>
<td>Number of Historical Generalizations with Supporting Facts</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Number of Generalizations without Supporting Facts</td>
<td>.5</td>
<td>1.</td>
</tr>
<tr>
<td>Number of Facts Supporting Generalizations</td>
<td>.66</td>
<td>.56</td>
</tr>
<tr>
<td>Length of Facts</td>
<td>.80</td>
<td>.60</td>
</tr>
<tr>
<td>Structure</td>
<td>.71</td>
<td>.70</td>
</tr>
<tr>
<td>Assessment of Sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source Reliability</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Conflicting Sources</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Alternative Interpretations</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Socio-cultural Identification</td>
<td>.66</td>
<td>.73</td>
</tr>
</tbody>
</table>

---

7 Levels are within the page, page length, and across the page generalizations.
8 Historical generalizations were deleted. Only one category of generalization was used in the research, on the basis of these results.
9 A binary variable, indicating whether facts were elaborated, replaced the number of words.
10 Structure of facts included descriptive, explanatory, narrative, and other. Descriptive and explanatory were combined into one variable.
Table 7. (Continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th><strong>Book #1: Bound for America</strong></th>
<th><strong>Book #2: Joan of Arc</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass = Passage</td>
<td>Pass #1 Pass #2 Pass #3 Prop.</td>
<td>Pass #1 Pass #2 Pass #3 Prop.</td>
</tr>
<tr>
<td>Prop = Proportion</td>
<td>.66 .88 1. .85 1. .5 1. .83</td>
<td>.75 .88 1. .88 1. .5 1. .83</td>
</tr>
</tbody>
</table>

**Illustrations**

| Total Number of Illustrations | .66 .88 1. .85 1. .5 1. .83 |
| Elaborates on Generalizations | .75 .88 1. .88 1. .5 1. .83 |
| Does not elaborate on Generalizations | .5 1. 1. .83 1. 1. 1. 1. |

**Captions**

| Total Number of Captions | .75 .57 1. .77 |
| Captions that Elaborate on Information | .5 .5 1. .67 |
| Captions that Provide New Information | .75 1. .5 .75 |
| Captions that Restate the Information | 1. 1. .5 .83 |

| Proportion for Domain Knowledge | .81 .91 |

**3. Causal Explanations**

| Level of Causal Explanation | 1. 1. .66 .89 1. 1. .5 .83 |
| Description of Individual(s) | .8 .8 .66 .75 1. 1. .66 .89 |
| Explanation of Motives | .83 .8 .66 .76 1. 1. .66 .89 |
| Explanation of Consequences | 1. .8 .66 .82 1. 1. .5 .83 |
| Explanation of Significance of Event | 1. 1. 1. 1. 1. 1. 1. 1. |
| Causal Explanation elaborates on Generalization | .5 .5 .5 .5 1. 1. 1. 1. |

| Illustrations related to causal explanations | 1. 1. .30 .77 1. 1. 1. 1. |
| Total number of illustrations | 1. 1. .30 .77 1. 1. 1. 1. |

*(table continues)*
Table 7. (Continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Book #1: Bound for America</th>
<th>Book #2: Joan of Arc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pass #1</td>
<td>Pass #2</td>
</tr>
<tr>
<td>Elaborates on the causal explanation</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Does not elaborate on the explanation</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Captions</td>
<td>Total number of captions</td>
<td>1.</td>
</tr>
<tr>
<td>Elaborates on the Information</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Provides New Information</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Restates the Information</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Proportion for Causal Explanations</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Primary Source</td>
<td>Name and Description of Source</td>
<td>1.</td>
</tr>
<tr>
<td>Name of Source</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Quotation</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Paraphrase</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Citation</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>The Use of Source</td>
<td>Elaborates on Information in:</td>
<td>Generalizations</td>
</tr>
<tr>
<td>Causal Explanations</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Other Text</td>
<td>1.</td>
<td>1.</td>
</tr>
</tbody>
</table>

(table continues)

11 The variables elaborates on information and provides new information were combined as one variable, elaborates on information, because discrepancies could not be resolved.
The source of discrepancies between the inter-raters was the result of three factors. First, a discrepancy in their analysis was a result of the rater’s understanding of the definitions of variables and the research instruments. With more instruction and practice, discrepancies were resolved. To solve these discrepancies, the definitions were refined, and their application to content was agreed upon. The second type was a matter of hindsight. The rater overlooked material that should have been coded. With the benefit of hindsight the raters agreed on how material was to be coded. The third type of
discrepancy was the result of irreconcilable differences in understanding and interpretation of the definitions and the textual content. Where this type of discrepancy occurred, the variable was deleted from the research instruments, or combined with another variable. Its application to the content was then agreed upon.

**Results of the inter-rater reliability study.** The inter-rater reliability study resulted in refinements to the definitions of variables and to the procedures for coding (Brophy, 1990). The following discussion explains the five instances where variables were removed from the study. In four of the instances, the variable was combined with another one. The variables related to illustrations were removed from the study. Coding illustrations was subject to such a high degree of interpretation that the definitions could not account for contingencies. Raters found that illustrations served many functions supporting the text. They believed they could not reliably and independently code illustrations.

Second, the definitions for elaborative information and new information in captions could not provide for all differences that occur in the books. Their differentiation required a refinement beyond the scope of this study. They were thought to be closely related, one meant the other. Elaborative and new were combined into one category, and the category "information that provides different information" was created. With this change captions could be coded in one of three ways, they were elaborative, they restated the running text, and they provided different information from anything in the running text. The corrected reliability was .96.

Third, the distinction between explanatory and descriptive was not detailed enough to provide for all contingencies. The difference between descriptive and explanatory facts was too fine for the purposes of this study, so the two variables were
combined into one. Other categories were narrative and other. The corrected reliability was .96.

Fourth, the distinction between historical and textual generalizations was deleted because definitions could not be made extensive enough to account for the range of nuance in determining whether a generalization was historical or not. The research literature on “higher level thinking” in teaching and learning history does not make a distinction between the kinds of generalizations expected in books (cf. Brophy, 1990). Textual and historical generalizations were combined into one category of generalization, with a reliability of .86.

Finally, to replace the scale variable, length of facts, one binary variable was created, that coded whether or not facts supporting generalizations were elaborated. This decision was made because the numbers of words in the passage that contained the fact became so long they constituted context units. Where facts had elaborative information, the fact was coded as a “yes” for elaboration, and the scale value for length of facts was deleted as a variable. With this correction the reliability coefficient was .96.

The definitions of the variables included in the research instruments, and that were the subject of the inter-rater reliability study, were based upon the research literature on coherence and categories of historical understanding. These are described in Chapter One and the terms are explained in Chapter Two, in the sections related to terms of the four research instruments. Budd, Thorp, and Donohew (1967) note that the method of reliability “presumes that a measure measures what it is supposed to measure if . . . the coding has a high degree of reliability” (p. 69). Although overall reliability coefficient is above the level of acceptability in the inter-rater reliability study, within category
reliability is less consistently high. Norris and Philips (1994) wrote that the reliability for "tests of reasoned judgments tends to be low" (p. 957). They report that two of the most widely used tests of critical thinking have reliability estimates that range from .67 to .90. The interpretation of content meant to derive generalizations and themes from it is one aspect of the epistemology of social studies and the process of historical thinking. The research literature on generalization often concerns social studies and history textbooks rather than trade books. In this study, the books and the designated passages within them vary in their length, their focus on historical content and issues, and topics of history and biography. Analysing similar content which was one cornerstone of McCabe’s (1993) analysis of text books was not one of the considerations in this study. The raters concluded that certain categories could be coded with discussion, such as illustrations, but they didn’t think they could independently code illustrations in categories that they would consistently agree upon. The section of generalizations and captions is within the overall range that Norris and Philips mention, although the within-category percentages vary widely. Other categories such as the use and integration of primary sources is consistently strong.

In this study, a thorough reading of the category and operational definitions, preceded practice sessions in which the four research instruments were used to analyze the passage. The raters found that the practice sessions were most effective when three passages were analyzed for the four research instruments and in-depth discussions followed the analysis and coding. They also refined the process of analysis during the practice session, not only analyzing the three passages for categories for each instrument, separately, but subdividing the instruments for a more focused analysis during each
reading. Further, they found that documenting the discussions provided information when they analyzed the passages independently. The refined process had implications in the analysis of the second book. Since the book was different from the first book in content and authorial presence, distinguishing the effects of a refined process from the character of the book was inconclusive. However, the reliability percentages within the generalizations category were higher for the second book than in the first book. After the reliability percentages were calculated, and the discussion of discrepancies occurred and was documented, the category definitions and instruments were refined. The next section presents the coding procedures for analyzing books.

**Procedures**

All of the books selected met the criteria for analysis. They were classified historical nonfiction or biography by the Library of Congress and had been selected as an Orbis Pictus Award winner or honor book. During the initial reading of all the books in the sample, the whole book was read, and notes were made pertaining to particular content germane to the research instruments. An average of words per line was calculated for the different column sizes in the book. All the lines were counted in the books, for each of the column sizes, and a total number of words of running text were computed. Then, the number of words per passage and the total number of words analyzed were calculated. During this process attention was given to insuring the middle passage began at a place that marked a new thought, new section, and on a few occasions, a new chapter. The middle of the book had to appear close to the middle of the second passage. Front and end matter, except for indices, were included in the count. During each subsequent reading, each research instrument was used, separately, to read through, and
analyze, the three passages. Because of the large number of variables in the study, little
time lapsed between each reading.

**Reading Passages for Coding and Analysis**

In this section samples from the books illustrate the procedures of how the
research instruments were applied to the text. Once the size of the passages was
determined, the three passages were analyzed for the variables in each research
instrument. A complete analysis of the three passages was made with each instrument
before moving forward to the next instrument because the research instruments had
discrete sections. Focusing on each section helped to make sure that content was not
missed. For instance, the *Contextualization Research Instrument* has a section on
vocabulary and a section on metadiscourse. In order to insure capturing measuring the
variables in the instrument, a sweep of the passages focused on the vocabulary, and a
second sweep focused on metadiscourse. A third sweep focused on the captions of the
illustrations, with reference to the text as a whole. The same process occurred with the
*Domain Knowledge Research Instrument*, which has sections related to author
perspective, generalizations, socio-cultural identification, and discussion of source
reliability, conflicting sources, and alternative interpretations. To analyze content for
each section, a sweep of the passages focused on each one separately. Should the
investigator notice content that belonged in a previous section, it was noted and coded in
the previous section. Where a decision was made that content was more appropriately
measured by a different variable than thought in a previous sweep, the change was made
and data was removed from one count and placed in a column of the research instrument
representing another variable. For instance in the reliability study, the raters resolved a
discrepancy in the analysis of Joan of Arc (Stanley, 1998). At the end, Stanley writes that we know more about Joan than any other woman until modern times because of the two transcripts (of her trial and her rehabilitation). The statement has a certain salience to it, which would mean it would be an example of metadiscourse, but the raters decided that the causal nature of the statement weighed more heavily than the suggestion of salience.

The procedure of analyzing the three passages was a reiterative one, looking at content a number of times from the perspective of a different focus. The analysis of each book was completed before going to the next book. Each research instrument was applied to the text without delay between instruments, in order to build a mental image of the book as a whole. The effect of analyzing a book with all the instruments in a timely, sequential manner was most clearly demonstrated in the analysis of The Great Little Madison (Fritz, 1989). In that book, the layers of coherence became evident at the end of the analysis. The total of the book was larger than the sum of the parts. The sequence of the analysis of each book followed the sequence of what constitutes a coherent text, which may have contributed to the effect of recognizing the totality of the book.

In the first part of the analysis the Contextualization Research Instrument which dealt with vocabulary and metadiscourse, was used. The definitions of the categories, as they were outlined for the study, were a constant reference point while reading the passages. This instrument was followed by the Domain Knowledge Research Instrument. The Interrelationships Research Instrument, which included causal explanations followed because, on occasion, authors developed causal explanations in the service of supporting generalizations. Finally, the Integration of Primary Sources Research Instrument
measured content at the end of the analysis, in part, because primary sources are used to support generalizations and to elaborate upon causal explanations.

The following discussion demonstrates the procedure for coding an excerpt from a passage, or context unit, with each of the instruments. In each section, a passage from a different book is provided in the demonstration.

**Examples of context units and coding procedures.** The *Contextualization Research Instrument* contained variables related to vocabulary and metadiscourse. The definitions refined by the inter-rater reliability study were references during analysis of the book. As an example, the following context unit for metadiscourse is taken from the picture book, *Joan of Arc* (Stanley, 1998). The situation which this excerpt represents is the last couple of days of Joan’s life, after the trials for heresy had been completed. She has been a prisoner for a number of weeks.

Joan was given a dress to wear, but men’s clothing was left in her cell, as if her captors were daring her to put it back on. Indeed, four days later, Joan defied the church and doomed herself by once again dressing as a man. She supposedly told Cauchon that she had done it willingly preferring death to life in an English prison. Others explained it differently; either that the guards forced her into it by taking her dress away or that she thought men’s clothes, with their leggings and tight laces, protected her from the crude advances of her jailers. Either way, as Joan said several times, it would not have happened had they put her in a church prison.

Early in the morning of May 30, 1431, two priests came to Joan’s cell to hear her last confession and to tell her that, within the hour; she was
to be burned at the stake. Joan burst into tears. It was such a dreadful way to
die! (unpaged)

Discussion. Although this unit contained metadiscourse, it also presented content
that would be analyzed with other research instruments. Certain terms clearly met the
criteria for metadiscourse, such as "indeed," or as being emphatic, and "supposedly," as
being a hedge, that is, the word represented question, uncertainty and doubt. The phrase,
"as if her captors were daring her to put it back on," was coded as hedging because it
suggested conjecture, implying a question. The exclamation, "What a terrible way to
die!" was coded as evaluative metadiscourse, because of the author's judgment on the
outcome. In terms of the vocabulary part of the research instrument, the term, "Cauchon"
had been introduced in previous pages, but not in the passages analyzed, and his name
was not in the pronunciation guide. He was not coded for vocabulary.

An example from another book, the Great Little Madison (Fritz, 1989) provides a
context unit for the Contextualization Research Instrument that demonstrates similar
challenges as Joan of Arc (Stanley, 1998) presented, as well as new ones. The context of
the situation is that James Madison has been a brilliant student at Princeton where he has
had the best time of his young life. He is in his final year of study.

He listened to his friends talk of their plans for the future. Most
were choosing to be preachers or lawyers, but how could James be either?
With his weak voice, how could he stand up in a pulpit and deliver a
thundering sermon about the will of God? How could he speak out in a
courtroom and convince a jury that he was right? (Besides, he didn't want
to.) Perhaps he worked so hard because he needed to prove himself. Or
forget himself. Perhaps without realizing it, he was simply trying to overcome his littleness.

It was a terrible schedule that he and Joe Ross set themselves. For the most part James tried to get by with no more than five hours of sleep a night. He must have felt his body breaking under the stream but he didn’t give up. He finished his work in time to get his degree but he wasn’t at the graduation ceremony with his ten classmates. (p. 13)

Discussion. In the first paragraph, the repeated term "Perhaps," was coded as hedging metadiscourse. The sentences asking conjectural questions or asking questions of doubt, whether they were expressly the author’s or those that James may have asked himself were coded as hedging metadiscourse. In the developmental stages of the study, the decision had been made to code as hedging, the author’s personal conjectures as well as the author’s writing of possible conjectures her subject made. Each case of doubt or question were coded as separate instances of metadiscourse. The term “Besides,” was coded as an instance of emphatic metadiscourse in that it underscores the values and ideas of James that the author has been explaining in the passage.

In the second paragraph, the author uses descriptive language as she mentions James’ work load. Such language, although integral to the meaning of the text as it shows the author’s interpretation of the information, was not coded as metadiscourse, because definitions that covered the interpretation of all contingencies and instances of lively language could not be controlled. Also, such lively language could be construed as related to the author’s perspective on the topic. Coding lively language was considered too subjective to be controlled by the definitions.
Example of context unit and coding procedure for domain knowledge. The following excerpt is taken from *Children of the Dustbowl: The True Story of the School at Weedpatch Camp* (Stanley, 1992). During the third reading, data was collected and coded for the Domain Knowledge Research Instrument. This instrument contains five sub-sections, perspective, generalizations, comment on source reliability, conflicting sources and alternative interpretations, socio-cultural identification, and captions to illustrations. Separate readings dealt with the categories of each sub-section to insure that all the data was collected. The following context unit is an example where content was coded in more than one research instrument. Brief reference is made to the two other instruments, but the focus of the discussion of the procedure focuses on measuring content for domain knowledge.

The situation of this context unit is that Weedpatch Camp had been built by the federal government, in view of the hardship and poor living conditions of the people from the Dust Bowl who had ended up in the area near Bakersfield, in the San Joaquin Valley of California, to find work and a better life for their families. With the completion of the federal camp, the people had houses and plumbing rather than makeshift tents and leantos in which to live. But in their dealing with the larger community, the Okies faced ridicule, rejection, shame, and hostility. At the beginning of this chapter in which this excerpt occurs, Stanley has provided abundant examples of the injustice and intolerance the people faced. Captions provided elaborative information. Then, Stanley focuses on the children.

The feeling of rejection was greatest among Okie children. Because they had been poor for so long and had been traveling for months to get to
California, the Okie children had not been able to attend school, and many couldn't read or write. When they went to school each day, most of the teachers ignored the migrants, believing that Okie kids were too stupid to learn the alphabet, too dumb to master math, and too "retarded" to learn much of anything. Other teachers forced the new comers to sit on the floor in the back of the classroom, while the non-Okie kids, well dressed with clean faces and the best school supplies, sat at desks and poked fun at their classmates who wore dresses made out of chicken-feed sacks, baggy overalls held up by rope, and frequently no shoes at all.

"Okie kids," said Eddie Davis, who was twelve at the time, "were the scum of the earth." The girls were called "maggie" and "maggot," a play on the word "migrant." The boys were humiliated when the school nurse checked them for lice. Wayne Rogers remembered, "As she looked through our hair and our ears she would tell us, 'Okies have lice. Okies have lice.' That made me feel terrible." Ruth Criswell recalled, "Every day, my daughters were jeered in school as Okies. My oldest girl would come home so mad every day she could hardly stand it." Myrle Dansby, a twelve-year old, wrote a poem to express her sense of humiliation.

The teachers nag
And look at you
Like a dirty dish rag. (pp. 38-39)

Discussion. This excerpt contains a series of elaborative statements related to the generalization regarding the suffering of the children. In reading for domain,
or disciplinary knowledge, decisions had to be made about whether a generalization that crossed the page was related to larger generalizations that were the subject of the chapter or of the book, or whether a generalization could be coded within the page or across pages. The chapter dealt with the suffering of the Okies, generally, the way people talked to them, the impossibility of getting jobs, or the ways the Okies stood out in the community by virtue of their way of speaking and their visible poverty. In this instance, the supporting information regarding the suffering of the children continues to the end of the chapter.

Decisions had to be made concerning whether this context unit was merely supporting evidence for a larger one of general suffering, or whether it would be considered a separate generalization. Krippendorf (1980) noted that the larger the size of the material for analysis, reliability was harder to establish. The passage related to the children was coded separately from earlier text related to the people in general. Stanley (1992) includes a long quotation by a father and then summarizes the section with a theme that is elaborated upon later in the book. He writes, “But like their parents, the Okie children drew strength from one another. They were tough and they believed they could be as good as anyone else” (p. 39). The argument and discussion related to the children was treated as an across page generalization.

A range of generalizations were coded, namely, those that were within a paragraph, those that were page length, and those that were across pages. To code them, rereading the section was necessary. With this context unit, the subject has changed from a wider focus on all the people, to a fine focus on the experience of the children. The
discrete facts were counted and those with elaborative information were totaled for a score in the category “elaborated facts.” A sentence in the first paragraph is an example of information considered elaborative. “Most of the teachers ignored the migrants, believing that Okie kids were too stupid to learn the alphabet, too dumb to master math, and too “retarded” to learn much of anything” (p. 39). The sentence explains teachers’ attributions about the children. It implies a causality but since it is not explicit, it is not coded as a causal explanation. Stanley (1992) does not say, the teachers ignored them because they thought the children were too dumb to master math.

The causal statement in the first paragraph was coded in the fourth reading for causal explanations of the Interrelationships Research Instrument. Since it is related to the generalization about the effects of the bigotry and intolerance on the children it was coded as supporting the argument.

The quotations of children and the mother were treated by the Integration of Primary Sources Research Instrument and coded, in that instrument, as elaborating on generalizations. The purpose of the coding was to make connections between instruments, which represented the interconnections the different parts of the text had with one another. This context unit is an example of a more complex passage related to generalizations because the author has supported the argument with causal explanations and primary sources. In many instances, the supporting facts were more directly related to the generalization.

The following context unit, which provides an example, of more enumerated, descriptive and supporting information than in the excerpt from Stanley (1992) comes from the introduction of The Many Lives of Benjamin Franklin (Osborne, 1990).
At that time America was not yet a unified republic. The country was made up of thirteen separate colonies which were considered part of the British Empire. There was no single church and no one way of life. There were Boston Puritans, Philadelphia Quakers, western frontiersmen, Native American Indians, southern planters, Blacks from Africa, as well as people from Germany, Scotland, France, Iceland, Switzerland, and many other countries. The thirteen colonies hugged the eastern coast of America. Beyond them lay huge, untamed territories claimed by France and Spain. (p. x)

Discussion. In this context unit the argument that American was not a unified republic was supported by a number of facts, briefly stated, mostly dealing with the demographics of the young nation. The supporting facts were coded as descriptive/explanatory and not coded as elaborated. The final sentence was coded as supporting information for the argument.

Example of a context unit and coding procedure for causal explanations. The following excerpt is taken from The Many Lives of Benjamin Franklin (Osborne, 1990). The situation for the context unit is the period of the American Revolution and Franklin is in France, currying the favor and support of King Louis XVI.

Franklin also worked very hard to obtain loans from the French for Washington’s desperate army. Since the United States at that time was nothing more than an unorganized group of different colonies, it did not have a real government. People did not even pay taxes or use the same currency. So Franklin continually had to be beg France for more money to help the patriots fight the war.
France gave huge sums of money to the Americans, and also sent over large shipments of war supplies, food, and clothing. It was many months however, before these supplies reached General Washington’s army, for they not only had to be slipped past the British naval blockade, but they to be transported over terrible roads as well. (pp. 101-102)

Discussion. In the Interrelationships Research Instrument, where causal explanations are coded, one category is the designation of the size of the causal explanation, within the paragraph, page length and across the page. In this excerpt are several across page explanations by virtue of the explanation of the individuals and the motivation for the action. The section concerns the American Revolution which is the larger context for these explanations. France, colonists, and colonies have been described. In order to fight the war, money was necessary, but because the United States was nothing more than an unorganized group of colonies, it didn’t have a government. Because it had no taxation, Franklin begged the King of France for money. France provided money but because of the difficulty of transport many months passed before it reached General Washington. Osborne (1990) organizes information in explicit causal sequences more than most of the authors in the collection. Each causal statement was coded separately, for the components of causal explanation, description of the individual, motivation (or pre-condition) for the event, and consequences of the event. Where significance is coded, the author makes explicit reference to the meaning of the event in terms of larger concepts. In these examples, support of King Louis XVI and the unorganized character of the United States were coded as reference to significance. As a
footnote, Osborne (1990) used explicit causal statements to organize and present information more frequently than any other author in the collection.

Example of a context unit for primary sources. The following excerpt comes from Bound for America: The Forced Migration of Africans to the New World (Haskins & Benson, 1999). Each page and facing illustration represent a different topic, each with a section heading. The heading for passage from which the excerpt is taken is titled “Selecting Slaves for Purchase.” The illustrations are not part of the analysis.

Even more important than ethnic background was physical condition. The captains checked the captives for good teeth and flexible arms and legs, and had their own doctors examine them for signs of disease. The captains then negotiated a price for the slaves they wanted.

J. Taylor Wood, a midshipman on the United States brig, Porpoise, described a group of slaves the Porpoise rescued from a Spanish slave ship in the mid-nineteenth century: “My charges were all of a deep black; from fifteen to twenty-five years of age, and, with a few exceptions, nude, unless copper or brass rings on their ankles or necklaces of cowries can be described as articles of dress. All were slashed, or had . . . scars . . . on their foreheads and cheeks. Their hands were small, showing no evidence of work, only the cruel marks of shackles. These in some cases had worn deep furrows on their wrists or ankles.” (p. 24)

Slave traders usually purchased the captives with European goods. In 1756, two slave ships out of the british coastal town of Newport recorded that African men were worth one hundred fifteen gallons of rum; women,
fifty gallons. John Atkins recorded the price of a slave boy as seven fifty-pound kettles, five pieces of brawls (a blue-and-white-striped cloth manufactured in India), one piece of ramal (a soft leather), and one bar of iron. Venture Smith wrote in his memoirs that he was purchased by the ship’s steward for “four gallons of rum, and a piece of calico, and called Venture, on account of his having purchased me with his own private venture. Thus I came by my name.” Ottobah Cugoano of the Fanti tribe was sold at Cape Coast Castle for “one gun, one piece of cloth and a small quantity of lead.” (unpaged)

Discussion. The Integration of Primary Sources Research Instrument has a category for name and description of the source. The decision had to be made whether a description of the source quoted in an earlier passage qualified for the category in this passage. J. Taylor Wood is introduced in this excerpt but Venture Smith has been quoted in previous passages where he was described. He was not coded in the name and description category for the quotations in this context unit. The reference to the record of two boats, in the third paragraph were coded as name only, although the reference to two boats recording information caused a semantic problem in the coding. Ottobah Cugoano had been coded as a name, but since the quotation is not explicitly attributed to him, and is attributed to no source, it was not coded.

Each source was coded as a quotation, paraphrase, or citation. The statements of J. Taylor Wood and Venture Smith, were treated as quotations. The reference to the records on the boat were treated as a paraphrase. Reference to year does not constitute a citation. Primary sources are coded in the category dealing with its support of
generalizations, causal explanations, or other text. The quotations here are related to the generalizations of the unit, that physical condition was more important than ethnicity and that slave traders purchased captives with European goods. Each primary source coded in this unit includes a transitional phrase or statement that introduces the quotation or the paraphrase. To be coded as successful uses of primary sources, they needed to elaborate on the information in the text and support salient arguments. The quotation of J. Taylor Wood was arguably not related to the purchase of slaves as the last paragraph was, but it was related to the importance of physical condition and so was coded as a successful use of primary sources. This context unit provides an excellent example of the challenge in determining appropriate size. At the beginning of the section and in a short paragraph of fifty-four words, Haskins and Benson (1999) discuss the display of the captives in the marketplace where their physical condition is the subject of the traders' inspection. The explanation underscores the argument that physical appearance was critical in selection and purchase.

Each of the context units presented here were within the passages of analysis. Each unit was analyzed using all four research instruments, in sequence. On occasion, data was moved from one instrument to another because data can be coded only once, in a reiterative process that required the investigator to refer back to the definitions while deciding how to code content. The excerpts from Haskin and Benson (1999) and Stanley (1992) were from two of the books in the reliability study, which means that two raters were undertaking the reiterative process of analysis. The next section concerns the treatment of the collected data.
**Treatment of the Data**

Once the data collection and coding were completed, the data were transferred to the computer for analysis using the Statistical Package for the Social Sciences (SPSS) program. Each variable was measured three times to represent three passages. For instance, one of the variables in the Contextualization Research Instrument was hedging metadiscourse. This variable had three subvariables, hedging metadiscourse in passage one, in passage two, and in passage three. For each variable, a composite was formed by taking the total score across the three subvariables.

Frequencies showed the extent of the composite’s variability. Reliability analyses were computed to determine the relationship of the occurrence of the variable in one passage to the other two passages. The process of the analysis is explained in Chapter V, Analysis of the Data. Additional binary variables indicated whether a book had front matter—table of contents, introduction, and author’s notes, for instance—and end matter—references or annotated bibliographies, for instance. One indicated the total number of words in the text, words per passage, and total words for the three passages were also recorded. Finally, one variable indicated whether the book was a picture book or a chapter book. The analysis of the composites was intended to answer the following questions posed by this study:

1. To what extent are selected characteristics of textual coherence (i.e., support of generalizations, causal explanations and their significance, vocabulary, and explanation of salience and certainty of information) demonstrated in a sample of historical nonfiction books?
2. To what extent does children's historical nonfiction, selected for high quality, demonstrate selected characteristics of disciplinary coherence (i.e., author's perspective, integration of primary sources, suggestion of alternative interpretations, resolution of conflicting sources)?

3. To what extent is the degree of coherence influenced by the length of the book?

4. To what extent does the author's voice, as developed through metadiscourse, contribute to coherence?

5. To what extent are the characteristics of textual coherence (support of generalizations, causal explanations and their significance, vocabulary, salience, and certainty of information) and disciplinary coherence (author's perspective, integration of primary resources, suggestion of alternative interpretations, and resolution of conflicting evidence) related across the length of a book?

The research hypotheses were analyzed using bivariate correlations of the composites. The hypotheses related to the questions were:

1. The sample of books is expected to demonstrate characteristics of coherence and they are of unequal proportion across the books as measured by three passages.

2. The sample of books is expected to demonstrate characteristics of disciplinary coherence and they are of unequal proportion across the books as measured by three passages.

3. The length of the book is expected to be related to evidence of coherence.
4. A relationship between the presence of the author and coherence is expected.

5. Characteristics of coherence are expected to be related across the sample of books as measured by three passages.

Bivariate correlations were computed for each composite with every other composite in order to measure the variation in the frequency and relative occurrence of all the composites for all the books. Scatterplots were generated to show how individual books were related in terms of the two variables. The scatterplots indicated where one book, or data point, was distant from the rest of the books, represented by the cluster of data points. To decide whether the distant book, that is, the outlier, was present in the correlation, it was removed and another correlation was computed that showed its influence. Once this analysis was complete, decisions could be made about the character of the correlations and the extent to which their level of significance was influenced by outliers. This analysis was the next step, after the coding the content, in testing the research hypotheses.

In order to analyze the relationships among the composites they were combined to form four groups that reflected the research instruments. The examination of correlations of each composite informed the analyses of the relationships among the groups. The discussion of these relationships is the subject of Chapter VI, Results of the Analysis.

**Summary**

In the most general terms, content analysis is the systematic description of semantic and syntactic content of communications. This chapter started with an overview to content analysis and proceeded to focus more closely on the study of the content analysis of a selection of Orbis Pictus books. The types of research design for content
analysis were outlined with specific reference to the type of design used in this study. A discussion of the sample of the books explained the criteria for their selection. Reference to the research literature provided a foundation for determining the sample size and the length of passages coded and analyzed.

The categories for content analysis reflected the research questions and the purposes of the research. They were mutually exclusive, exhaustive, and derived from a single classification principle. The categories became the variables in the study. In this chapter the research instruments comprising the variables showed how they were related to the concepts of coherence. Since historical accounts include a context in which the event occurred, in this study, context was represented by variables measuring the author’s defining vocabulary and the author’s presence, in metadiscourse. Other concepts of coherence addressed by the categories were, first, that overarching generalizations promote networks of information. Second, causal explanations in historical writing create interrelationships among the facts. Third, primary sources provide multiple perspectives on events and ideas the authors present.

In order to refine definitions of the variables in the research instruments and to inform the procedures for coding and analyzing the books, an inter-rater reliability study resolved discrepancies in the analysis of two books. All the discrepancies were documented and the summary of the inter-rater reliability study is included in this chapter. Where discrepancies could not be resolved, the variables were deleted from the analysis. The reliability study informed the decisions to delete or combine variables and the procedures for coding and analyzing the books. To illustrate the procedures for coding, excerpts from the books, referred to as context units, were the basis for
discussion of the process of data collection. The last subject of this chapter concerned the
treatment of the data based on the research questions and hypotheses.

At each stage of development of the methodology, decisions were made that both
refined the variables and delimited the categories in the research instruments. For
instance, in the design stages, coding background information for generalizations, was
thought to be too subjective to be quantifiable. What appears to be background for one
reader is not background for another reader. Then, during the selection phase, the criteria
for selecting the books limited the number from any one group. Finally, the reliability
study resulted in changes to the variables and research instruments.

Chapter V, Analysis of the Data, describes the process for determining the
composites, those variables that were consistently measured across three passages, and
the analysis of the bivariate correlations of each composite with every other composite.
Chapter V
ANALYSIS OF THE DATA

To collect data for the research questions posed by this study, the four research instruments were used to measure the variables, representing characteristics of coherence, in three passages. The Contextualization Research Instrument was used to identify characteristics of coherence represented by definition of vocabulary and metadiscourse. The Domain Knowledge Research Instrument was used to identify characteristics of disciplinary knowledge, namely author perspective, generalizations and supporting evidence, discussion of source reliability, conflicting sources and alternative interpretations, and socio-cultural identification, namely, age, gender, socio-economic status, ethnicity, and race. The Interrelationships Research Instrument was used to identify the components of causal explanations. The Integration of Primary Sources Research Instrument was used to identify characteristics of primary sources as they are included in historical accounts. (See Appendix D for the four research instruments).

Based upon the criteria of selection, thirty-two books constituted the sample to be coded. These books were Orbis Pictus Award winners or honor books from 1989 to 2000 and were classified as "history, juvenile literature," or biography, by the Library of Congress. They were selected in the subcategories, before and after 1994, books less than ninety pages, and books over ninety pages. This third category was further refined to books over ninety pages and books equal to, or less than, 150 pages, and books over 150 pages. The complement of Orbis Pictus books that met the criteria are shown in Table 2. The size of the sample was based on the concept of statistical power (Minium, Clarke, &
Coladarci, 1999). The four research instruments were designed to show the relative incidence of the variables in the sample of books. The analysis of the content yielded scores for 84 variables in three passages of each book, for a total of 252 subvariables. The subvariable represented the variable in each passage. For instance, the variable, hedging metadiscourse, had three subvariables, hedging metadiscourse in the first passage, hedging metadiscourse in the second passage, and hedging metadiscourse in the third passage. As Crismore writes, “Quantitative information is necessary for indicating relative emphasis given to variables in the sample” (Crismore, 1983, p. 21). The research questions and null research hypotheses guiding this study were presented at the end of Chapter IV, Methodology. This chapter concerns the statistical analysis of the data in addressing the research questions. The analysis included frequencies, reliability analyses, and correlations to determine the relative variation of characteristics of coherence in the books as measured in three passages.

The following discussion traces the process of determining the variables that were computed as composites. Since the analysis required the consideration of a number of factors, examples showing steps in the analysis are included here. Frequency tables reliability analyses were computed for the 84 variables. On the basis of the results of the analysis, composites were computed.

**Frequencies and Reliability Analysis of the Research Variables**

At the beginning of the analysis, frequencies and reliability analyses were computed for 84 variables from the four research instruments.
Frequencies of Variables

Thorough and simultaneous consideration of frequencies for three passages and the reliability analyses provided the foundation for determining whether a composite would be computed across the three subvariables. Before a decision could be made the first step in the process was the generation of frequencies for each passage.

The following three tables are examples of frequencies for one variable across three passages. Table 8 that values vary widely from zero to twenty-five with good variation between the extremes. For instance, Table 8 shows that three authors made statements coded as hedging metadiscourse six times in passage one. The greater the variability and frequency the greater the reliability that the measurement shows the relative occurrence of the variable and that the variable reasonably measures a particular aspect of coherence for the book.

Table 8.

Frequency of Hedging Metadiscourse in Passage One

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<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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</thead>
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Table 9.

**Frequency of Hedging Metadiscourse in Passage Two**

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<th>Percent</th>
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<td>3.1</td>
<td>3.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 10.

**Frequency of Hedging Metadiscourse in Passage Three**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Frequency</th>
<th>Percent</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>0</td>
<td>37.5</td>
<td>37.5</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>12.5</td>
<td>12.5</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>15.6</td>
<td>15.6</td>
<td>65.6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.1</td>
<td>3.1</td>
<td>68.8</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6.3</td>
<td>6.3</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>6.3</td>
<td>6.3</td>
<td>81.3</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>6.3</td>
<td>6.3</td>
<td>87.5</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>3.1</td>
<td>3.1</td>
<td>90.6</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>3.1</td>
<td>3.1</td>
<td>93.8</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>3.1</td>
<td>3.1</td>
<td>96.9</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>3.1</td>
<td>3.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Other variables were measured with less frequency. Where variances were low within one or more passages for the variable; that is, where they were measured once or twice, they were deleted from the variables for which composites were computed. For this study sturdy variation and frequency was thought to be a representation of the data.
that would withstand further analysis. The following tables show frequencies and variation that were low.

Table 11.

Frequency of Across the Page Causal Explanations for Passage One

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 0</td>
<td>22</td>
<td>68.8</td>
<td>68.8</td>
<td>68.8</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>21.9</td>
<td>21.9</td>
<td>90.6</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>9.4</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 12.

Frequency of Across the Page Causal Explanations for Passage Two

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 0</td>
<td>25</td>
<td>78.1</td>
<td>78.1</td>
<td>78.1</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>21.9</td>
<td>21.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 13.

Frequency of Across the Page Causal Explanations for Passage Three

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 0</td>
<td>24</td>
<td>75.0</td>
<td>75.0</td>
<td>75.0</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>15.6</td>
<td>15.6</td>
<td>90.6</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>9.4</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Where frequencies and variation were low the decision was made to not compute the composite. The decision was not a judgment on the importance of the variable. The low frequencies, and small variation indicated there was insufficient data to conclude the measurement of the variable represents the content of the book.
Reliability Analysis. For those variables which survived the frequency distribution analysis, a reliability analysis was conducted to determine a reliability coefficient, or Cronbach's Alpha.

Table 14 shows one reliability analysis. The term "item" refers to each subvariable, Meathe. 1, Meathe. 2, and Meathe. 3. To determine which variables would become a composite, five factors were considered. Table 14 shows these factors in bold. They are the mean and standard deviation, the intercorrelations among the variables, item-total correlation, the corrected correlation if passage alpha is deleted, and Alpha.

Table 14.

Reliability Analysis for Hedging Metadiscourse (MEATHE)

for Three Passages in All the Books of the Sample

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEATHE.1</td>
<td>4.2188</td>
<td>5.9824</td>
<td>32.0</td>
</tr>
<tr>
<td>MEATHE.2</td>
<td>2.6250</td>
<td>3.6610</td>
<td>32.0</td>
</tr>
<tr>
<td>MEATHE.3</td>
<td>3.1250</td>
<td>4.0700</td>
<td>32.0</td>
</tr>
</tbody>
</table>

Correlation Matrix

<table>
<thead>
<tr>
<th>MEATHE.1</th>
<th>MEATHE.2</th>
<th>MEATHE.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0000</td>
<td>0.6136</td>
<td>0.7394</td>
</tr>
<tr>
<td>0.6136</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>0.7394</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Item-total Statistics

<table>
<thead>
<tr>
<th>Scale</th>
<th>Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item-Total</td>
<td>Alpha</td>
</tr>
<tr>
<td>Correlation</td>
<td>if Item</td>
</tr>
<tr>
<td>Deleted</td>
<td>Deleted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEATHE.1</th>
<th>MEATHE.2</th>
<th>MEATHE.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>.8238</td>
<td>.5466</td>
<td>.6585</td>
</tr>
</tbody>
</table>

Reliability Coefficients

Alpha = .7924
Standardized item alpha = .7998
The purpose of the reliability analysis was to discern the extent to which the measure in one passage was related to the measure in the other two passages. The results of the analysis determined the variables for which a composite was computed. These were important because the analysis of coherence was based on the composites.

**Factors in determining consistent measurement.** The first factor was the mean and standard deviation. The mean represents the mean number of times the variable occurred in each passage. The standard deviation (Std. Dev.) is the variation away from the mean. Where it was low, scores clustered closer to the mean than when it was high. A high standard deviation indicated greater variation of scores away from the mean.

The second factor was the intercorrelations among the passages, called the correlation matrix. The matrix in Table 14 shows that the relationship between passage one and either of the other two passages is stronger than the relationship between passages two and three. Scatterplots were generated to show the extent to which each passage influenced the correlation. The higher the correlations among the three passages, the more reliable was the variable as a measure of the characteristic of coherence in three passages.

The third factor in determining whether a composite score would be computed is the extent to which one of the three passages was related to the sum of the other two. This is the scale item-total correlation. Where the scale value of one subvariable was higher, it was more related to the sum of the other values, than when it was lower.

The fourth factor in the analysis of the measurement was the value for the reliability coefficient if one of the passages was deleted. A judgment had to be made as to whether a reliability coefficient for two passages was representative of three passages.
The decision was made to include all the passages in computing the composite, even when the Alpha, that is, the reliability coefficient, was higher were one of them deleted. The fifth factor was the value of alpha. For each variable, an Alpha of .6 was judged marginal, but acceptable. Not all high reliability coefficients were accepted. When the correlations between the passages were widely discrepant, or when the frequencies were low, the decision was made to not compute the composite.

**The Composites**

Table 15 presents a summary of the evaluation of reliability analyses for all 84 variables from the four Research Instruments. The table gives the names of the 31 composites that resulted from the evaluation and used in subsequent analyses of the data. All the research instruments were represented in the composites.

Table 15.

**The Descriptive Statistics for Composites**

<table>
<thead>
<tr>
<th>Title of Composite</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Range</th>
<th>Alpha</th>
<th>Range of item-total correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadiscourse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedging</td>
<td>9.96</td>
<td>11.80</td>
<td>0-25</td>
<td>.7974</td>
<td>.658 - .823</td>
</tr>
<tr>
<td>Emphatics</td>
<td>6.68</td>
<td>7.16</td>
<td>0-23</td>
<td>.7092</td>
<td>.581 - .692</td>
</tr>
<tr>
<td>Evaluation</td>
<td>4.90</td>
<td>4.15</td>
<td>0-10</td>
<td>.6780</td>
<td>.535 - .591</td>
</tr>
<tr>
<td>Domain Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author Perspective*</td>
<td>4.31</td>
<td>3.91</td>
<td>0-9</td>
<td>.6481</td>
<td>.448 - .626</td>
</tr>
<tr>
<td>Within the page generalizations</td>
<td>5.56</td>
<td>5.07</td>
<td>0-9</td>
<td>.7974</td>
<td>.598 - .735</td>
</tr>
<tr>
<td>Across the page generalizations</td>
<td>7.41</td>
<td>6.20</td>
<td>0-10</td>
<td>.8653</td>
<td>.669 - .837</td>
</tr>
<tr>
<td>Supported generalizations</td>
<td>15.65</td>
<td>9.66</td>
<td>0-20</td>
<td>.8360</td>
<td>.640 - .801</td>
</tr>
<tr>
<td>Supporting facts</td>
<td>66.84</td>
<td>45.70</td>
<td>0-78</td>
<td>.8961</td>
<td>.787 - .817</td>
</tr>
<tr>
<td>Elaborated facts</td>
<td>45.34</td>
<td>34.34</td>
<td>0-46</td>
<td>.8779</td>
<td>.706 - .808</td>
</tr>
<tr>
<td>Descriptive facts</td>
<td>60.41</td>
<td>38.82</td>
<td>0-78</td>
<td>.8304</td>
<td>.679 - .724</td>
</tr>
<tr>
<td>Captions elaborating on generalizations</td>
<td>12.30</td>
<td>9.10</td>
<td>0-23</td>
<td>.6577</td>
<td>.463 - .513</td>
</tr>
</tbody>
</table>

(table continues)
Table 15. (Continued)

<table>
<thead>
<tr>
<th>Title of Composite</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Range</th>
<th>Alpha</th>
<th>Range of item-total correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captions with different information from the running text</td>
<td>2.07</td>
<td>2.54</td>
<td>0-5</td>
<td>.7079</td>
<td>.439 - .613</td>
</tr>
<tr>
<td>Discussion of conflicting sources*</td>
<td>1.47</td>
<td>3.26</td>
<td>0-6</td>
<td>.8745</td>
<td>.644 - .874</td>
</tr>
<tr>
<td>Discussion of alternative interpretations*</td>
<td>4.06</td>
<td>6.91</td>
<td>0-16</td>
<td>.8127</td>
<td>.677 - .739</td>
</tr>
<tr>
<td>Socio-Cultural Identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>5.16</td>
<td>4.46</td>
<td>0-9</td>
<td>.6245</td>
<td>.427 - .511</td>
</tr>
<tr>
<td>Gender</td>
<td>16.28</td>
<td>15.44</td>
<td>0-33</td>
<td>.8557</td>
<td>.710 - .803</td>
</tr>
<tr>
<td>Socio-economic status</td>
<td>6.93</td>
<td>6.99</td>
<td>0-12</td>
<td>.8482</td>
<td>.572 - .859</td>
</tr>
<tr>
<td>Race</td>
<td>2.91</td>
<td>4.62</td>
<td>0-9</td>
<td>.7539</td>
<td>.448 - .732</td>
</tr>
<tr>
<td>Interrelationships: Causal Explanations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within the page causal explanations</td>
<td>5.84</td>
<td>5.06</td>
<td>0-12</td>
<td>.6447</td>
<td>.386 - .543</td>
</tr>
<tr>
<td>Description of Individuals</td>
<td>7.25</td>
<td>5.43</td>
<td>0-13</td>
<td>.6492</td>
<td>.360 - .578</td>
</tr>
<tr>
<td>Explanation of Motivations</td>
<td>7.38</td>
<td>5.48</td>
<td>0-13</td>
<td>.6574</td>
<td>.396 - .571</td>
</tr>
<tr>
<td>Explanation of consequences</td>
<td>7.31</td>
<td>5.43</td>
<td>0-13</td>
<td>.6252</td>
<td>.318 - .548</td>
</tr>
<tr>
<td>Captions elaborating on causal explanations</td>
<td>1.13</td>
<td>2.05</td>
<td>0-4</td>
<td>.7829</td>
<td>.585 - .668</td>
</tr>
<tr>
<td>Primary Sources*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name and description of the (primary) source*</td>
<td>17.156</td>
<td>24.08</td>
<td>0-57</td>
<td>.8944</td>
<td>.853 - .907</td>
</tr>
<tr>
<td>Name of the source*</td>
<td>2.94</td>
<td>4.02</td>
<td>0-10</td>
<td>.7186</td>
<td>.490 - .713</td>
</tr>
<tr>
<td>Quotation of the source*</td>
<td>16.84</td>
<td>25.96</td>
<td>0-60</td>
<td>.9258</td>
<td>.892 - .945</td>
</tr>
<tr>
<td>Source as support for a generalization*</td>
<td>13.91</td>
<td>18.04</td>
<td>0-40</td>
<td>.8815</td>
<td>.789 - .846</td>
</tr>
<tr>
<td>Length of the source*</td>
<td>592.97</td>
<td>911.19</td>
<td>0-2225</td>
<td>.8797</td>
<td>.763 - .884</td>
</tr>
<tr>
<td>Transitional phrase or statements for source*</td>
<td>12.81</td>
<td>18.31</td>
<td>0-33</td>
<td>.9138</td>
<td>.828 - .863</td>
</tr>
<tr>
<td>Source as new information*</td>
<td>18.34</td>
<td>23.85</td>
<td>0-53</td>
<td>.9096</td>
<td>.815 - .876</td>
</tr>
<tr>
<td>Successful use of the source*</td>
<td>19.31</td>
<td>24.91</td>
<td>0-59</td>
<td>.9023</td>
<td>.826 - .872</td>
</tr>
</tbody>
</table>

*Composites that have asterisks represent characteristics of disciplinary coherence in Research Question 2.
Table 15 shows that all of the research instruments are represented in the composites. The reliability coefficient for a majority of the composites is higher than the range of reliability coefficients were one of the passages removed. This means that the three passages together have a higher reliability coefficient than any two of them. The reliability of composites for which the deletion of one of the passages could result in a slightly higher reliability coefficient had a reliability that was acceptable. High reliability coefficients means that the variable was reliably measured for the book.

**Summary of the Reliability Analyses and the Determination of Composites**

In this section examples of frequency tables demonstrated the variability of the occurrence of variables across the three passages. Reliability analyses for the variables were analyzed in order to determine those for which composites would be computed. The point of the reliability analysis was to determine the internal consistency of the variables across the three passages. Internal consistency means that the occurrence of a variable in one passage was correlated with its occurrence in the other passages.

**Analogous situations to reliability analyses and composites.** A school situation provides an analogy to the reliability analysis of variables in the content analysis of Orbis Pictus books. In a hypothetical situation, a reading comprehension evaluation, items measure the comprehension of nonfiction literature. Should the reader read poetry for the first reading and nonfiction for the other two readings, the variable would not be reliably represented across the three readings. A composite score that represents the total score for the reading variable for all three passages cannot be computed with acceptable reliability.

Another hypothetical examples comes from a third grade classroom. A reading inventory has been conducted with the students that includes both recall of the text and
open ended discussion of the content. One student scores high on both dimensions, much higher than the other students. The student is articulate and has a substantial body of knowledge she draws upon in making inferences and connections between the text and the world. The correlation of the class is remarkably high until her composite scores are removed. Then the correlation accurately depicts the relationship of the two dimensions among the children.

Variables that were not composites. The degree of the relationship for three passages is represented by the reliability coefficient, Cronbach’s Alpha. Where internal consistency is low, that is, where the alpha is low, all the passages were not represented by the variable. However, some variables may not be expected to have relationships across all passages. One such variable was a generalization across the book. The author may introduce such a generalization in the first passage. She may not introduce text wide generalizations in other parts of the book and yet the generalization is well supported. For example, Jurmain (1989) presents such a case in the introduction of her book, Once Upon A Horse. She says that the horse has been part of the rise and fall of civilizations through history. Wherever man has made achievements, conquests, or wars, the horse has been a partner. Through the book, she recounts many instances to illustrate her generalization.

A composite score means the variable was measured reliably across three passages. The decision not to compute a composite does not mean the variable was unimportant. Correlations between books where the variable was not measured did not provide reliable data for computing composites. The following section discusses the next process in the analysis of the correlations.
Analysis of the Correlations Among the Composites

The analyses have involved individual passages for all the books. On the basis of frequency and reliability analyses, out of 84 variables, thirty-one variables were selected for which composites were computed.

**Frequencies, Correlations, Scatterplots, and Outliers**

The next stage of the analysis involved frequencies, correlations, and scatter plots of the composites. In a sense the process looking at three passages was replicated in looking at the correlations among the composites. The first step in the analysis was to generate table of frequencies for thirty-one composites. Table 16 is an example.

Table 16.

**Frequency of Hedging Metadiscourse Composite**

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid .00</td>
<td>2</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
</tr>
<tr>
<td>1.00</td>
<td>4</td>
<td>12.5</td>
<td>12.5</td>
<td>18.8</td>
</tr>
<tr>
<td>2.00</td>
<td>5</td>
<td>15.6</td>
<td>15.6</td>
<td>34.4</td>
</tr>
<tr>
<td>3.00</td>
<td>2</td>
<td>6.3</td>
<td>6.3</td>
<td>40.6</td>
</tr>
<tr>
<td>4.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>43.8</td>
</tr>
<tr>
<td>5.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>46.9</td>
</tr>
<tr>
<td>6.00</td>
<td>2</td>
<td>6.3</td>
<td>6.3</td>
<td>53.1</td>
</tr>
<tr>
<td>7.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>56.3</td>
</tr>
<tr>
<td>8.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>59.4</td>
</tr>
<tr>
<td>9.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>62.5</td>
</tr>
<tr>
<td>10.00</td>
<td>2</td>
<td>6.3</td>
<td>6.3</td>
<td>68.8</td>
</tr>
<tr>
<td>11.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>71.9</td>
</tr>
<tr>
<td>12.00</td>
<td>1</td>
<td>3.1</td>
<td>3.1</td>
<td>75.0</td>
</tr>
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Table 16 shows that most authors used hedging metadiscourse and its occurrence has a wide variation. The two books with the highest scores for hedging are *The Great Little Madison* (Fritz, 1989) and *We Have Conquered Pain: The Discovery of Anesthesia* (Fradin, 1996). These data points figured in subsequent analysis involving composites of metadiscourse because of their influence on the correlations among the composites.

Once frequency tables were generated, every composite was correlated with every other composite in 465 correlations and scatter plots. Scatterplots are computed to examine the relationships of the individual books along the two dimensions of the correlation. Where one book was far away from the other books it was removed and another correlation was calculated to show the influence of the one book on the correlation. The correlations are the subject of the following discussion.

**Identification of the Outlier**

One of the purposes of the scatter plots for the bivariate correlations was to determine whether or not a point was an outlier. The following tables demonstrate different cases in determining whether an outlier was to be removed. The scatterplot in Figure 1 clearly shows no outliers and demonstrates a strong positive correlation between two composites. In Figure 2 one point was far removed from the mass of points. Considered an outlier and, when removed, a second correlation was computed to determine its influence. An outlier can influence the correlation and make it higher or lower than the correlation of the cluster of data points. In the middle ground, decisions were not clear cut. Figure 3 shows such a case. Correlations and scatter plots were generated to determine the relative influence of a point that possibly was an outlier.
Figure 1. A scatterplot of the bivariate correlation between generalizations across the page and generalizations with supporting information. $r = .80^{**}$ ($p < .01$)

In this scatterplot no data point is removed from the correlation. Even the high point at about 26 on the vertical axis falls along the regression line; that is, it is on a line that goes through the middle of the rest of the data points from lower left to upper right.

Figure 2 shows the other extreme where an outlier is clearly separated from the general configuration of all the other points. It is also a case where removing the outlier raises the correlation coefficient from non-significance to significance.
Figure 2. Scatter plot of the bivariate correlation between hedging metadiscourse and transitional phrase or statement for a primary source. $r = .18$ with outlier; $r = .42^*$ ($p < .05$) without outlier, 15: *Fiery Vision: Life and Death of John Brown* (Cox, 1997).

The high points are not outliers compared to the point on the extreme right. The following table shows the middle ground where a point might be considered an outlier.

---

1 The number of the outlier was the number assigned to the book when the data was entered for statistical analysis. The number identifies each "subject," that is, each book, in the study.
Within the Page Causal Explanations

**Figure 3.** Scatter plot of the bivariate correlation between hedging metadiscourse and within the page causal explanations. $r = .54^{**}$ ($p < .01$) with outlier; $r = .62^{**}$ ($p < .01$) without the outlier. 28: *The Many Lives of Benjamin Franklin* (Osborne, 1990).

This scatter plot shows several points removed from the bulk of the points. The point at hedging metadiscourse fifty was not entirely alone. Another book, represented by the point at forty-one for hedging metadiscourse was company. If the farthest point was removed then another point, or two, would become outliers. Even though the correlation was higher with an outlier removed, the correlation of variables were was sufficiently high for all the points to be included in the correlation. These three examples give an indication of the range of correlations examined for the presence of outliers. Correlations were computed for every composite with all the other composites. Scatterplots were
generated and analyzed simultaneously to determine which composites influenced the
correlation.

**Determination of the Influence of the Outlier**

Bivariate correlations and scatterplots were computed for each composite with
every other composite. The purpose of the scatterplots was to show the extent to which
one or more books influenced the correlation. In every instance where an outlier was
thought to be present, a second correlation and scatterplot were computed to determine
the relative influence when it was removed from the correlation. Of the 465 correlations
of the composites, 266 additional scatter plots and correlations were made for the points
requiring decisions about the extent to which a book, represented by a data point, was an
outlier. The summary of findings is in the flow chart in Table 17 at the end of this
section.

In generating the scatter plots, the influence of the outliers fell into five
categories. The following group of examples shows, the first scatterplot, in Figure 4,
shows a statistically significant correlation that increases with the removal of an outlier.
Figure 5 shows an example of a scatterplot of a statistically significant correlation that is
decreased, but is still statistically significant, with the removal of an outlier. The next two
scatter plots represent correlations that show, first, in Figure 6, a non-significant
correlation that becomes statistically significant with the removal of the extreme case. In
the second scatterplot, Figure 7, a statistically significant correlation decreases to non-
significance with the removal of the extreme case.

In the fifth category of influences outliers have on correlations, a non-significant
correlation remains non-significant when the outlier is removed. In this category the
outlier may have influenced the non-significance to the extent that it was higher or lower, but the substantive decision that the correlation was not significant was left unchanged. Although all correlations are of interest in examining coherence the correlations that are statistically significant show strong relationships between composites. The following scatterplot in Figure 4 demonstrates a correlation whose statistical significance increases with the removal of the outlier.

Figure 4. Scatterplot of the bivariate correlation between hedging metadiscourse and discussion of alternative interpretations. $r = .48^{**} (p < .01)$ with outlier; $r = .63^{**} (p < .01)$ without outlier, 10: The Great Little Madison (Fritz, 1989).

When the outlier, at hedging metadiscourse 50, is removed the correlation is more robust, the cluster of data points are closer together along the line of regression.
The scatterplot in Figure 5 shows a scatterplot of correlation whose statistical significance decreases with the removal of the outlier but is still statistically significant. It is an example of a correlation that is so robust it survives the removal of the extreme case.

Figure 5. Scatterplot of the bivariate correlation between elaborated facts supporting generalizations and name and description of a primary source. $r = .53^{**} (p < .01)$ with outlier; $r = .52^{**} (p < .01)$ without outlier, 15: Fiery Vision: Life and Death of John Brown (Cox, 1997).

When the outlier, Fiery Vision: Life and Death of John Brown (Cox, 1997), is removed, the correlation decreases. This book proved to be an outlier in a number of
correlations related to primary sources as The Great Little Madison (Fritz, 1989) influenced correlations where hedging metadiscourse was one of the dimensions.

The correlations in Figures 3, 4, and 5 have been statistically significant. Scores along one dimension increased as the scores increased along the other dimension. The discussion of the correlations with data points that influenced the statistical significance is the subject of the next section. The scatter plot in Figure 6 shows a non-significant correlation that becomes statistically significant when the outlier was removed.

![Scatter plot of bivariate correlation between hedging metadiscourse and transitional phrase or statement for a primary source.](image)

**Figure 6.** Scatterplot of bivariate correlation between hedging metadiscourse and transitional phrase or statement for a primary source. $r = .19$ with outlier; $r = .42^*$ ($p < .05$) without outlier, 15: Fiery Vision; Life and Death of John Brown (Cox, 1997).
When the outlier in Figure 6 is removed the line along which most of the points position themselves diagonal. Figure 7, shows a statistically significant correlation that decreases to non-significance when the outlier is removed. When the outlier was removed the correlation was more scattered.

![Graph showing socio-cultural identification with hedging metadiscourse](image)

**Figure 7.** Bivariate correlation between hedging metadiscourse and socio-cultural identification: Age. \( r = 0.43^* (p < .05) \) with outlier; \( r = 0.18 \) without outlier, 10: *The Great Little Madison* (Fritz, 1989).

Figure 8 is a summary of the findings from the analysis of correlations of the composites. It shows the correlations, the number of outliers, and their influence.
Results of the Identification of Outliers
In the Scatter Plots for the 465 Bivariate Correlations

Correlations With No Outliers

43% (N = 199) of the Total

Correlations With Outliers

57% (n = 266) of the Total

48% of these (n = 126) Increased with Outlier Removed

52% of these (n=140) Decreased With Outlier Removed

27% of these (n = 34) Increased from NS* to SS**

21% of these (n = 30) Decreased from SS** to NS*

Glossary of Terms
NS = Nonsignificance
SS = Significance

Figure 8. Flow chart of the results from the analysis of bivariate correlations for outliers.
**Summary of the Analysis of The Data**

The first section recapitulates the research questions presented at the beginning of the chapter. The second section is a summary of the chapter.

**Discussion of the Research Questions**

**Research Question 1**

To what extent are selected characteristics of textual coherence (i.e., support of generalizations, causal explanations and their significance, vocabulary, and metadiscourse—salience, doubt, certainty, evaluation, preplans, postplans, goals, topicalizers) demonstrated in a sample of historical nonfiction books?

Of the 84 variables in the research instruments, 63 of them related to textual coherence. The results of frequencies and reliability analyses resulted in creating composites for twenty of them. The variables that were measured consistently and reliably across the length of three passages. They were three variables of attitudinal metadiscourse and eight variables related to generalizations and supporting facts. These were within the page generalizations, across the page generalizations, generalizations with supporting facts, supporting facts, elaborative facts, descriptive facts, captions for generalizations, and captions that have different information from the running text. In addition to these eleven composites, four composites related to socio-cultural identification and five related to causal explanations. They are summarized in Table 15.

(The variables related to vocabulary, four variables related to informational metadiscourse, one variable of attitudinal metadiscourse, across the book generalizations and supporting facts, narrative facts, two variables of socio-cultural identification, five variables related to captions elaborating on generalizations, four variables related to
captions elaborating on vocabulary, and four variables related to causal explanations were not measured consistently through three passages.)

**Research Question 2**

To what extent does children's historical nonfiction, selected for high quality, demonstrate selected characteristics of disciplinary coherence (i.e., author's perspective, integration of primary sources, discussion of alternative interpretations, source reliability, and conflicting sources)?

Of the 21 variables representing the characteristics of disciplinary coherence eleven were computed as composites. They were author perspective, discussion of conflicting sources, discussion of alternative interpretations, and eight composites related to primary sources. These eight composites were the name and description of the source, name of the source, quotation of the source, source as support for a generalization, the length of the source, transitional phrase or statement for the source, source as new information, and the successful use of the source. The variables not consistently measured were discussion of source reliability and unsuccessful use of the source.

**Research Question 3**

To what extent is the degree of coherence influenced by the length of the book?

Textual coherence, (i.e., support of generalizations, causal explanations and their significance, vocabulary, and metadiscourse—salience, doubt, certainty, evaluation, preplans, postplans, goals, topicalizers) is positively correlated with the length of the book for a total of sixteen of the twenty variables measured across the length of the book. The correlations that were not significant involved the following four variables:
metadiscourse of evaluation, discussion of conflicting sources, captions for
generalizations, and captions elaborating on causal explanations.

Nine of the eleven variables of disciplinary coherence (i.e., author’s perspective,
is, integration of primary sources, discussion of alternative interpretations, source reliability,
and conflicting sources) were positively correlated with the length of the book, as
measured in three passages. The nine variables included author perspective, discussion of
conflicting sources and alternative interpretations, and eight composites concerning
primary sources. The variables that did not have statistically significant correlations to
book length were the following variables: name of primary source, and discussion of
conflicting sources. A discussion of the results, for both textual and disciplinary
coherence is provided in Chapter VI, Results of the Analysis, in the section called,
Research Hypotheses.

Research Question 4

To what extent does the author’s voice, as developed through metadiscourse,
contribute to coherence?

Composites that represent author’s voice, or author’s presence are the three
composites for metadiscourse—hedging, emphatics, and evaluation, and author
perspective. The extent to which these were related to coherence is discussed in Chapter
VI, Results of the Analysis.

Research Question 5

To what extent are characteristics of textual coherence (support of
generalizations, causal explanations and their significance, vocabulary, and salience and
certainty of information, and socio-cultural identification) and disciplinary coherence
(author's perspective, integration of primary resources, discussion of conflicting sources and alternative interpretations) related across the length of a book?

The extent to which coherence was developed across the length of the book is discussed in Chapter VI, Results of the Analysis.

Summary

In the analysis of the data, reliability analyses were conducted for every variable from the four research instruments. Each reliability analysis showed the relative measurements among the three passages for the particular variable. A thoughtful judgment of these analyses, on the basis of five factors, determined the variables for which composites would computed. They were computed for variables in the four research instruments that measured content for all passages of the book. Other variables, that measured content in one passage, or that had such low frequencies and low variations as to indicate little consistency in the measurement of data were not computed as composites.

Once composites were computed, scatterplots generated for the bivariate correlations of all the composites indicated data points that might be considered outliers, which are data points that influence the correlations. Additional correlations were computed with these points removed. Four books respresented the bulk of the outliers: Fiery Vision: the Life and Death of John Brown (Cox, 1997), The Great Little Madison (Fritz, 1989), Now is your time!: The African-American struggle for freedom (Myers, 1991), and The Many Lives of Benjamin Franklin (Osborne, 1990). The strength of each book, as a composite, such as hedging metadiscourse in the case of Fritz, influenced the relationship when it becomes a point on one dimension in a bivariate correlation.
However, Figure 8 shows that, of the 266 correlations concerned with outliers, substantive decisions regarding the statistical significance of the correlations remained the same for 202 of them when outliers were removed. Of the 64 whose statistical significance decreased to nonsignificance or increased to significance, 34 correlations increased from nonsignificance to statistical significance. The analysis of outliers was not a judgment on the book as being a negative quality. Determining the influence of the outlier was the way to understand the character of the correlation represented by the greater number of the books.

The next chapter concerns the results of the analysis. It involves the discussion of the correlations among the composites. It explains how the composites were grouped. The purpose for the groups was so to examine their relationships in a larger perspective than in terms of hundreds of separate bivariate correlations. The groups in the discussion are metadiscourse, domain knowledge, socio-cultural identification, causal explanations, and primary sources. The analysis of the results first involves the relationships of the composites within each group, and then the relationships between each group and the other four. The last section of the chapter reviews the research hypotheses and discusses the extent to which expectations have been met.
Chapter VI
RESULTS OF THE ANALYSIS

In the previous chapter the analysis examined the correlations between individual composites and every other composite. To determine which variables were computed as composites, frequencies and the reliability analyses for every variable were analyzed to determine the extent to which variables were measured across three passages. Composites were computed for those variables that had variation in their frequencies, a substantial number of books in the frequencies, and an acceptable reliability coefficient, or Alpha of .6 or higher, which indicates the extent to which a variable is reliably measured through the passages. The descriptive statistics for the composites are presented in Table 15.

In order to analyze their relationships as characteristics of disciplinary coherence, the 465 correlations were amalgamated into larger groups. These groups reflected the research instruments. The three composites for metadiscourse, hedging, emphatics, and evaluation, were clustered together in the large group, metadiscourse. These composites had been variables in the Contextualization Research Instrument. Similarly, the composites related to generalizations, perspective, and discussion of conflicting sources and alternative interpretations were grouped together in the second group, called domain knowledge. They had been among the variables in the Domain Knowledge Research Instrument.

The four composites of socio-cultural identification, age, gender, socio-economic status, and race, were separated from the other composites related to domain knowledge and became a discrete group. This change was the only occurrence where variables in the
research instruments were not clustered in the same group during this phase of the analysis. The four composites related to socio-cultural identification were separated from the other composites for two reasons. First, the group, domain knowledge, was by far the largest of all the groups. Making the groups more equitable in size facilitated looking at relationships among them. Secondly, the other composites in the domain knowledge group either were single, such as author perspective, or were closely related, such as the composites related to generalizations. Thirdly, composites of socio-cultural identification appeared to represent a group that could be related to other groups of composites.

The five composites related to causal explanations were clustered in a fourth group. In the data collection phase of the study, causal explanations were measured by the Interrelationships Research Instrument. Finally, the fifth group was comprised of the eight composites related to primary sources. This group reflected the Integration of Primary Sources Research Instrument. (See Appendix D for the Research Instruments).

This chapter discusses relationships among the five groups. Two terms are used in the discussions. They are "within-group relationships" and "between-group relationships." Within-group relationships refers to the relationships the composites in a group have with one another. For instance, within-group relationships for metadiscourse are those between hedging and emphatics, between hedging and evaluation, or between emphatics and evaluation. The between-group relationships refer to those between one group of composites and another. For instance, the relationships between socio-cultural identification and primary sources were stronger than the relationships between metadiscourse and primary sources. This means that the occurrence of primary sources
was more related to the occurrence of socio-cultural identification in the books, than it was to metadiscourse.

The order of the discussions of the results in the chapter does not indicate importance of one group over another. They follow the order of the research and data collection. First, are the within-group relationships for metadiscourse, domain knowledge, causal explanations, socio-cultural identification, and primary sources. Second, are the between-group relationships for each of the five groups. In each section, the correlation matrix pertinent to the discussion is presented as an overview of the section. To read the table, the reader scans down the left column to find one composite. The reader then scans the top row for the other composite in the correlation. The column and row are followed to where the two composites meet. The number in the cell is the correlation. A diagonal line of cells with 1.000 in them runs through the matrix. It represents the correlation of a composite with itself. The correlations on one side of the diagonal line are the same as the correlations on the other. The reader need read only the correlations in one half of the matrix or the other to have the full array. The between-group matrices, presented with the discussions, also contain the within-group correlations for each of the both groups in the discussion.

The last section of the chapter reviews the research hypotheses that have addressed the research questions and discusses the results in terms of confirming or refuting the hypotheses. They are provided here in list form so the reader has a context while reading the results of the analysis.

**Research Hypothesis 1.** The sample of books demonstrates characteristics of coherence (i.e., support of generalizations, causal explanations and their significance,
vocabulary, and author presence in terms of metadiscourse—salience, doubt, certainty, evaluation, preplans, postplans, goals, topicalizers) and they are expected to be of unequal proportion in the books.

**Research Hypothesis 2.** The sample of books demonstrates characteristics of disciplinary coherence (i.e., author’s perspective, integration of primary sources, suggestion of alternative interpretations, comment on source reliability, resolution of conflicting sources) and they are expected to be of unequal proportion in the books.

**Research Hypothesis 3.** The length of the book is expected to be related to the evidence of coherence.

**Research Hypothesis 4.** A relationship is expected between author’s voice, that is, presence of the author, and coherence.

**Research Hypothesis 5.** Characteristics of coherence are expected to be related across the length of the books as measured by three passages.

The meaning of the results in this chapter is the subject of Chapter VI, Interpretation, Conclusions, Implications, and Future Directions. In that chapter references to passages in the books bridge the correlational analyses and the children’s literature that has been at the heart of the study.

**Discussion of Within-Group Relationships**

**Metadiscourse**

Table 17 presents the correlation matrix of the within-group relationships for metadiscourse. Within metadiscourse the correlations of the three composites are all statistically significant. The relationship between hedging and emphatic metadiscourse is the strongest one at the .01 level of significance.
Table 17.

Within-Group Correlations for Metadiscourse

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

Domain Knowledge

Table 18, presented on the next two pages, shows the within-group correlation matrix for the eleven composites comprising the group, domain knowledge. The three composites concerning author presence are author perspective, discussion of conflicting sources, and discussion of alternative interpretations.

As an overview of the relationships within domain knowledge, the statistically significant within-group relationships in domain knowledge involve five of the eleven composites. These are “across the page generalizations,” “supported generalizations,” “supporting facts,” “elaborated facts,” and “descriptive facts.”

Relationships involving author presence. Of particular importance are the statistically significant relationships that “author perspective” forms with other within-group composites, especially “discussion of alternative interpretations.” The within-group and between-group relationships formed by author perspective address Research Hypothesis 4. Comment here highlights the salience of the relationships.

---

3 Metadiscourse: Meathe = Hedging, Meatem = Emphatics, Meatev = Evaluation.
Table 18. (Continued)

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

Table 19 gives the within-group correlation matrix for socio-cultural identification composites. The relationships of the composites in this group are statistically significant.

Table 19.

**Within-Group Bivariate Correlations For Socio-Cultural Identification**

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<td>1.000</td>
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**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

**Causal Explanations**

Table 20 shows the within-group correlations for causal explanations. The relationships of causal explanations are statistically significant except for the relationships of one composite, “captions elaborating on causal explanations.”

---

4 Socio-cultural Identification: Socage = Age, Soçgen = Gender, Socses = Socio-economic status, Socrac = Race.
Table 20.

**Within-Group Bivariate Correlations For Causal Explanations**

<table>
<thead>
<tr>
<th></th>
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** Correlation is significant at the 0.01 level (2-tailed).

The relationships among the composites of causal explanations are generally the strongest of any within-group relationships in the five groups.

**Primary Sources**

Table 21 shows the within-group relationships involving primary sources. The relationships of composites within primary sources are statistically significant. The strength of the relationships in primary sources is similar in strength to the relationships in causal explanations. The relationships involving “name of the source” are not as strong as the relationships formed by the other primary source composites.

---

5 Causal Explanation: Calewi = Within the page causal explanation, Caindi = Description of individuals, Camoti = Explanation of motivation, Cacons = Explanation of consequences, Cacap = Captions elaborating on causal explanations.
Table 21.

**Within-Group Bivariate Correlations For Primary Sources**

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

**Summary of within-group relationships.** The composites in the five groups form statistically significant within-group relationships which is an expected outcome. The relationships are not uniformly strong as demonstrated in metadiscourse, where evaluation is not as strong as the relationship between hedging and emphatics, but it is still statistically significant. Within domain knowledge the relationships between author perspective and other composites related to generalizations and author presence are statistically significant.

---

6 Primary Sources: Prnade = Name and description of the source, Prname = Name of the source, Prquote = Quotation of the source, Pregen = Source as support for a generalization, Pr leng = Length of the source, Prtrans = Transitional phrase or statement, Prnew = Source as new Information, Prsucc = Successful use of the source.
Discussion of Between-Group Relationships

Metadiscourse and the Other Groups

Metadiscourse and Domain Knowledge. As a preview to this section, the relationships between metadiscourse and domain knowledge are not as strong as the strongest within-group relationship between hedging and emphatics.

Table 22, presented on the next two pages, shows the relationships between metadiscourse and domain knowledge. It is considerably longer than the Table 17, the within-group relationships for metadiscourse, but is read the same way. For instance to find the relationship between “author perspective” and “discussion of alternative interpretations,” the reader scans down the column for one composite, for instance, “discussion of alternative interpretations,” (soualt), and across the top row to “author perspective,” (pertex). At the meeting of the row and column is the correlation, $r = .716$ ($p < .01$). The relationships within metadiscourse are stronger than the relationships between metadiscourse and domain knowledge. The relationships hedging forms with domain knowledge composites are stronger than those that involve emphatic metadiscourse. The between-group relationship involving hedging and “author perspective” or “discussion of alternative interpretations,” are the strongest relationships involving of the metadiscourse composites. Again, as has been noted in the discussion of within-group relationships in the domain knowledge group, discussion of relationships involving author perspective and metadiscourse are important in addressing Research Hypothesis 4, regarding the relationship between author presence and coherence.
Table 22. (Continued)

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**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Metadiscourse and Socio-cultural Identification. Table 23 shows the between-group correlations involving metadiscourse and socio-cultural identification.

Table 23.

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

The relationships between metadiscourse and socio-cultural identification are statistically significant. The relationships within metadiscourse are stronger than the relationships between metadiscourse and socio-cultural identification. Between-group relationships for metadiscourse and domain knowledge are stronger than the between-group relationships of metadiscourse and socio-cultural identification.

Metadiscourse and causal explanations. As an overview, the relationships between metadiscourse and causal explanations are stronger than those between metadiscourse and domain knowledge or socio-cultural identification. Table 24 shows the between-group correlation matrix of metadiscourse and causal explanations.

Table 24.

Bivariate Correlations Between Metadiscourse and Causal Explanations

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

Metadiscourse and primary sources. Table 25, presented on the next two pages, shows the correlation matrix for relationships between metadiscourse and primary sources. The relationships between metadiscourse and primary sources are not statistically significant. They are the weakest of the between-group relationships for metadiscourse.

---

* Metadiscourse: Meathe = Hedging, Meatem = Emphatics, Meatev = Evaluation.
Causal Explanation: Calewi = Within page causal explanation, Caindi = Description of individuals, Camoti = Explanation of motivation, Cacons = Explanation of consequences, Cacap = Captions elaborating on causal explanations.
Table 25. (Continued)

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** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
Summary. The between-group relationships between metadiscourse and domain knowledge or causal explanations are statistically significant. The unexpected result is that relationships between metadiscourse and causal explanations are stronger than those between metadiscourse and domain knowledge. The second unexpected result is that the relationships between domain knowledge and metadiscourse are weaker than the within-group relationships for metadiscourse.

The relationship between hedging metadiscourse and domain knowledge composites related to author presence are statistically significant. The strongest one is between hedging and alternative interpretations. The relationships between metadiscourse and domain knowledge, causal explanations, socio-cultural identification, suggest there is a relationship between author presence, as it is measured by metadiscourse, and coherence, as it is measured by the three other groups.

Domain Knowledge and the Other Groups

Domain Knowledge and socio-cultural identification. Table 26, presented on the next two pages, shows the between-group relationships for domain knowledge and socio-cultural identification. The strongest, statistically significant, between-group relationships involve gender and age and five domain knowledge composites related to generalizations.

The relationship between gender and author perspective is the only statistically significant one between socio-cultural identification and a composite representing author presence in the domain knowledge group. One intriguing result is that the composite, "captions with different information from the running text" forms a statistically significant relationship with socio-economic status and race but not gender and age.
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**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Domain knowledge and causal explanations. Table 27, presented on the next two pages, shows the correlation matrix for the composites of domain knowledge and causal explanations. The relationships between the composites representing generalizations and causal explanations are statistically significant. The relationships between the composites representing author presence (author perspective and discussion of conflicting sources or alternative interpretations) and causal explanations are not statistically significant, nor are the relationships between captions related to generalizations and causal explanations.

Domain knowledge and primary sources. Table 28 shows the correlation matrix of the composites in the domain knowledge and primary sources groups. The relationships are statistically significant. The strongest between-group relationships involve “across the page generalizations” and “supported generalizations” and the eight composites that comprise primary sources.

The relationships between domain knowledge and primary sources are not as strong as the relationships within the domain knowledge group. They are not as strong as the relationships between domain knowledge and causal explanations.
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**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
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Summary. Within-group relationships for domain knowledge are stronger than between-group relationships involving domain knowledge. The within-group relationships are statistically significant, except for the relationships between captions related to generalizations and the other composites. Relationships between author perspective and other composites in the domain knowledge group, most notably alternative interpretations are statistically significant. The relationship between discussion of conflicting sources and alternative interpretations is also statistically significant.

Domain knowledge has the strongest between-group relationships with socio-cultural identification and primary sources of the four groups. One unexpected result is the strength of the between-group relationships involving descriptive facts and causal explanations. A second unexpected result is that the between-group relationships between domain knowledge and metadiscourse are not as strong as those between domain knowledge and causal explanations.

Socio-Cultural Identification and the Other Groups

Socio-cultural identification and causal explanations. Table 29 shows the matrix of bivariate correlations involving the composites of socio-cultural identification and causal explanations. The relationships between age and gender and the composites of causal explanations are statistically significant. Those involving socio-economic status and race are not statistically significant.
### Table 29. Bivariate Correlations Between Socio-Cultural Identification and Causal Explanations

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<td>0.625**</td>
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<td>0.995**</td>
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</tbody>
</table>

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

The relationships between “captions elaborating on causal explanations” and any socio-cultural identification are not statistically significant. Except for age and gender, factors of socio-cultural identification are more related to each than to causal explanations.

**Socio-cultural identification and primary sources.** Table 30, presented on the next two pages, shows the correlation matrix between socio-cultural identification and primary sources. Socio-cultural identification has stronger between-group relationships with primary sources than with domain knowledge.

---

9 Socio-cultural Identification: Socage = Age, Socgen = Gender, Soces = Socio-economic status, Socrac = Race.
Causal Explanation: Calewi = Within page causal explanation, Caindi = Description of individuals, Camoti = Explanation of motivation, Cacons = Explanation of consequences, Cacap = Captions for causal explanations.
Table 30. (Continued)

<table>
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<td>0.593*</td>
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<td>0.521**</td>
<td>0.556**</td>
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<td>0.545**</td>
<td>0.677**</td>
<td>0.688**</td>
<td>0.653**</td>
<td>0.719**</td>
<td>0.660**</td>
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<td>1.000</td>
<td>0.609**</td>
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<td>0.322</td>
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<td>0.395*</td>
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<td>0.699**</td>
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<td>0.774**</td>
<td>0.740**</td>
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<td>0.963**</td>
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</table>

**. Correlation is significant at the 0.01 level (2-tailed).
. Correlation is significant at the 0.05 level (2-tailed).
Summary. The relationships between socio-cultural identification and either domain knowledge or primary sources are stronger than relationships within socio-cultural identification. In other words, age, gender, socio-economic status, and race are more related to domain knowledge or primary sources than they are to each other. The unexpected result is the extent to which the relationships between socio-cultural identification, and domain knowledge, primary sources, and causal explanations are so much stronger than within-group relationships for socio-cultural identification. The second unexpected result is that, although race forms the strongest within-group relationships, age and gender form the strongest between-group relationships with metadiscourse and domain knowledge.

Causal Explanations and the Other Groups

Causal explanations and metadiscourse. These relationships are presented in Table 24. They are statistically significant. The within-group relationships are stronger than those between the groups.

Causal explanations and domain knowledge. Table 27 in the section on domain knowledge; presents the correlation matrix for the two groups.

Causal explanations and socio-cultural identification. Table 29 shows that only age and gender have statistically significant relationships with causal explanations.

Causal explanations and primary sources. Table 31, presented on the next two pages, shows the correlation matrix between causal explanations and primary sources. Relationships between causal explanations and primary sources are weaker than any other between-group relationships that involve causal explanations.
Table 31. (Continued)

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<th>PRQUOT</th>
<th>PREGEN</th>
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<td>.929**</td>
<td>.940**</td>
<td>.956**</td>
<td>.963**</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
Summary. Relationships between causal explanation and domain knowledge are as strong as the relationships between domain knowledge and primary sources. The within group relationships of causal explanations are stronger than any other between-group relationships that involve causal explanations. The unexpected result is that the relationships between causal explanations and domain knowledge are stronger than the relationships between causal explanations and metadiscourse. A second unexpected result is that the relationships between causal explanations and primary sources are weaker than the other between-groups relationships.

Primary Sources and the Other Groups

Primary sources and metadiscourse. The relationships between primary sources and metadiscourse, presented in Table 25, are not statistically significant.

Primary sources and domain knowledge. Table 28 shows the relationships between primary sources and domain knowledge. The relationships with the domain knowledge composites pertaining to generalizations are statistically significant.

Primary sources and socio-cultural identification. Table 30 shows that among the composites of socio-cultural identification, gender forms the strongest relationships with the eight primary source composites. And the next strongest relationships involve race.

Primary sources and causal explanations. Table 31 shows that the relationships that primary sources form with causal explanations are comparable to those between primary sources and metadiscourse. They are not statistically significant.

Summary. Primary sources have statistically significant relationships with domain knowledge and socio-cultural identification. The unexpected result is that relationships between primary sources and causal explanations are not statistically significant. The
second unexpected result is that between-group relationships with socio-cultural identification are stronger than those with domain knowledge.

**Summary of the Results**

In order to discuss the relationships among the 465 bivariate correlations, combining them into major groups, metadiscourse, domain knowledge, socio-cultural identification, causal explanations, and primary sources, shows the relative strength of the relationships within and between the groups. Socio-cultural identification was made a separate group because of the disproportionate size of the domain knowledge group in relation to the other groups.

The between-group relationships for metadiscourse with causal explanations and domain knowledge are statistically significant. Relationships between metadiscourse and primary sources are not statistically significant. The between-group relationships involving metadiscourse and domain knowledge, causal explanations, socio-cultural identification, show that there is a relationship between author presence, as it is measured by metadiscourse and coherence, as it is measured by the other three groups. Correlations among “author perspective,” “discussion of conflicting sources,” and “discussion of alternative interpretations” are statistically significant. The relationship between “discussion of conflicting sources” and “discussion of alternative interpretations” is also statistically significant. Presence of the author, as measured by these three composites is related to characteristics of coherence, as they are measured by the composites in domain knowledge and metadiscourse.

Domain knowledge has the strongest, statistically significant, between-group relationships with socio-cultural identification and primary sources of the four groups.
The relationships between socio-cultural identification and either domain knowledge or primary sources are stronger than relationships within socio-cultural identification. That is, age, gender, socio-economic status, and race are more related to domain knowledge or primary sources than they are to each other.

Relationships between causal explanation and domain knowledge are as strong as the relationships between domain knowledge and primary sources. The within-group relationships of causal explanations are stronger than any between-group relationships that involve causal explanations. Primary sources are most related to domain knowledge and socio-cultural identification.

**The Research Hypotheses**

The following section addresses the research hypotheses. They are reviewed and findings are presented.

**Research Hypothesis 1**

The sample of books were expected to demonstrate characteristics of coherence (support of generalizations, causal explanations and their significance, vocabulary, and author presence in terms of metadiscourse—salience, doubt, certainty, evaluation, preplans, postplans, goals, topicalizers) and they were expected to be of unequal proportion in all the books.

The descriptive statistics for composites in Table 15 show characteristics of coherence measured across three passages. Table 32 shows relative proportions between scores for composites representing coherence and total words in the passages analyzed. Values in columns 7 are the scores for textual coherence. The values in column 10 are the
proportions of the scores to the length of passages analyzed. They are not of equal proportion in all the books.

**Research Hypothesis 2**

The sample of books were expected to demonstrate characteristics of disciplinary coherence (i.e., author's perspective, integration of primary sources, suggestion of alternative interpretations, comment on source reliability, resolution of conflicting sources) and they were expected to be of unequal proportion.

Table 32 shows the scores for disciplinary coherence. The values in columns 8 represent the total scores for disciplinary coherence. The values in column 11 are the proportions of the scores for disciplinary coherence to total length of passages analyzed. Disciplinary coherence is not of equal proportion across all the books.

In columns 10, 11, and 12 of Table 32 are the proportions (%) of the total scores of coherence to the total length of passages analyzed. Proportions for these scores were calculated by dividing the scores for textual and disciplinary coherence by the total length of passages analyzed. The value in column 10 refers to the characteristics of textual coherence involved in research hypothesis 1. The value in column 11 refers to the variables that represent the characteristics of disciplinary coherence involved in the second research hypothesis. For instance, in the book, *Children of the Dustbowl: The True Story of the School at Weedpatch Camp* (Stanley, 1992), the proportion of the score for textual coherence is .05 of the total length of passages analyzed and the proportion of the score for disciplinary coherence is .18. The value in column 12 gives the proportion for the combined scores of coherence, both textual and disciplinary. In *Children of the*
### Table 32.

**Summary of Book Lengths, Passages Lengths, Total Scores for Composites, and Proportions of Scores to Length of Passages**

<table>
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<tr>
<th></th>
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\(^1\) Primary source length has a score of 952. Most of the total score is primary source.

\(^2\) Primary source length has a score of 5742. Most of the total score is primary source.
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Dustbowl: The True Story of the School at Weedpatch Camp, the proportion of the total score for coherence is .23 of the total length of the passages analyzed.

**Research Hypothesis 3**

The length of the book was expected to be related to evidence of coherence.

*Proportions of scores for textual and disciplinary coherence.* Textual coherence was found to be strongly correlated with the length of the passages analyzed and the length of the book but not disciplinary coherence. Figures 9 and 10 show correlations representing the scores for coherence as a proportion of the length of passages analyzed. The total scores for composites were teased apart to form a score for textual coherence, as it is defined in the first research hypothesis, and a score for disciplinary coherence, as it is defined in the second research hypothesis.

The scatterplot in Figure 9 shows the bivariate correlation between the proportions of scores for the composites measuring textual coherence to total length of passages and the total length of passages. Figure 9 shows a statistically significant correlation between the proportion of scores for textual coherence to length of passages and the length of the passages. The correlation of the proportion to length of the books is also statistically significant, $r = -.58$ (p <.01). This correlation is different from the other correlations of proportions to length of passages and length of books. Of the proportions for disciplinary, textual, and total coherence, presented in Figures 9, 10, and 13, textual coherence is the only one whose correlation with length of passages and length of book is statistically significant. It is negative which means that shorter books have a higher proportion of coherence, to length of passages analyzed, than longer books.
Figure 9. Scatterplot of the bivariate correlation between proportion of textual coherence (to total length of passages) and total length of passages. $r = -.65^{**}$ ($p < .01$) with outliers, $r = -.71^{**}$ ($p < .01$) without outliers, 16\(^{10}\): William Shakespeare & the Globe (Aliki, 1999) and 19: Snowflake Bentley (Martin, 1998).

Figure 10 shows the scatterplot for the bivariate correlation between proportion of disciplinary coherence to total length of passages, as described in the second research, and total length of passages.

\(^{10}\) As mentioned in Chapter V, Results of the Analysis, this number of the outlier was the number assigned to the book when the data was entered for statistical analysis. The number identifies each “subject,” that is, each book, in the study.
Figure 10. Scatterplot of the bivariate correlation between proportion of disciplinary coherence (to total length of passages) and total length of passages. $r = .03$ with outlier, $r = -.17$ without outlier, 15: Fiery Vision: The Life and Death of John Brown (Cox, 1997).

Figure 10 shows that the proportion of disciplinary coherence to length of passages is weakly correlated to the total length of passages. Since the correlation is not statistically significant no substantive decisions can be made about the relationship. The correlation between the proportion for disciplinary coherence and the length of the book is also not statistically significant, $r = -.06$ with outlier; $r = .11$ without the outlier.
Figures 9 and 10 show correlations for the composites representing characteristics of textual coherence and of disciplinary coherence. The figures present the proportions in Table 32. The proportions for the scores are not equal.

Figures 11 and 12 show the correlations between the total scores for the coherence composites, representing all the characteristics of coherence, to the length of passages, in Figure 11, and the length of the book, in Figure 12. The scatterplot in Figure 12 shows the correlation between the proportions of total coherence to the length of the passages analyzed and the total length of passages.

Total score for coherence to the length of passages and book length. The scatterplot in Figure 11 presents the bivariate correlation between the total scores for the coherence composites and the length of passages. It is a statistically significant positive correlation.

The score for textual coherence is also positively correlated with length of passages, $r = .86** (p < .01)$ with the outlier and $r = .86** (p < .01)$ without the outlier. Similarly, the score for disciplinary coherence is positively correlated with total length of passages, $r = .63** (p < .01)$ with the outlier and $r = .54** (p < .01)$ without the outlier.

Figure 12 shows the scatterplot of the correlation between total scores for the composites and the book length. The correlations show that overall score for coherence tends to be correlated with the length of the passages analyzed and with the length of the book. The correlation between the score for textual coherence and book length and disciplinary coherence and book length are also positive and statistically significant, $r = .88** (p < .01)$ and $r = .64** (p < .01)$, respectively. These are expected. The longer the book, the more the opportunity for instances of coherence to occur.
Figure 11. Scatterplot of the bivariate correlation between total scores for coherence and total length of passages. $r = .69**$ ($p < .01$) with outlier; $r = .66**$ ($p < .01$) without outlier, 15: *Fiery Vision: The Life and Death of John Brown* (Cox, 1997).

The correlation between total scores for coherence and total length of passages is robust enough that the removal of the outlier has little influence on it.
Figure 12. Scatterplot of the bivariate correlation between total scores for coherence and length of book. $r = .72^{**}$ ($p < .01$)

Proportion of total score for coherence to length of passages analyzed. Figure 13 shows the scatterplot for the correlation between the proportion of total scores of coherence to total length of passages. The correlation of the proportion gives a different picture than the total scores to the length of the passages. The correlation between the proportion of total scores to passages and total length of passages analyzed is slightly negative, but not statistically significant. Since the correlation is not statistically significant no substantive decisions can be made about the relationship.
Figure 13. Scatterplot of the bivariate correlation between the proportion of total scores for coherence (to total length of passages) and total length of passages.

$r = -.11$ with outlier; $r = -.30$ without the outlier, 15: Fiery Vision: The Life and Death of John Brown (Cox, 1997).

The proportions of total scores for coherence and total length of passages takes into account total number of words. The proportion of total score to length of passages is slightly negative but not statistically significant. The only correlation between a proportion to the length of passages analyzed involves textual coherence, presented in Figure 9. The expectation of the research hypothesis that the length of the book has no relation to coherence has not been met. Textual coherence (support of generalizations,
causal explanations, and author presence in terms of metadiscourse—hedging, which is doubt, and emphatics, which is certainty, and evaluation) is related to the length of the book.

**Research Hypothesis 4**

A relationship between author's voice, that is, presence of the author, and coherence was expected.

The results of the bivariate correlations between measures of the presence of the author, namely metadiscourse, author perspective, discussion of conflicting sources, and discussion of alternative interpretations, are related to the composites of coherence. The correlations between the composites for presence of the author and other composites in domain knowledge and composites in causal explanation are statistically significant. The expectation of research hypothesis is met. Statistically significant relationships are evident between the author's voice and coherence.

**Research Hypothesis 5**

Characteristics of coherence are expected to be related across the length of the books, as measured in three passages.

The reliability analyses determined the variables that were reliably and consistently measured across three passages. Their measurement was not the same for all the books, yet the composites resulting from the reliability analyses were correlated. The correlation matrices presented in the Results of the Analysis show the relationships.

Table 32 shows the scale scores for textual and disciplinary coherence, the total scores, and the proportions of these scores to length of passages analyzed. The proportion of the composites of textual coherence to length of passages have a statistically
significant negative correlation to the length of passages. There is a relationship between
the length of the book and the evidence of coherence. The correlation is a negative one
which means that the proportion of textual coherence is greater for shorter books than it
is in longer books. Neither the proportion of disciplinary coherence nor of total coherence
to length of passages has a strong relationship with length of passages and length of
books. There is a relationship between the length of the book and coherence and the
composites of coherence are related across three passages.

**Summary**

This chapter has presented the results of the analysis of the data. The chapter has
reviewed the research hypotheses, and has presented findings to address them.

In the analysis of the data, the thirty-one composites were correlated with every
other composite to find out the relative influence of individual books on the correlations.
Certain books stood out in certain characteristics and these books influenced the
correlations. When these books were accounted for the, correlations more judiciously
represented the relationship among the books on the two dimensions in the correlation.
The results were complex. A composite that exerted a positive influence in one
correlation may have exerted no influence in another.

The analysis of the results addressed the first and second research hypotheses,
regarding presence of characteristics of coherence. Correlating each composite with
every other composite made the analysis a ground-up building process. Once this analysis
was completed, the composites were clustered in major groups in order to examine the
results. Clustering them in five groups allowed for interpretation more readily than
examining 465 separate correlations. The groups, in a sense, represented the walls of the edifice, each having a different appearance and serving a different function.

To address the third and fifth research hypotheses, correlations were computed between scale scores for textual, disciplinary, and total coherence, and the length of passages and length of book. These were statistically significant, but that would be expected. However, proportions of scale scores to length of passages were computed for textual, disciplinary, and total coherence. The correlations between the proportion of textual coherence to length of passages and length of book were negatively correlated at the (.01) level of statistical significance. This means shorter books have more evidence of coherence, per unit of words, than longer books.

The next chapter, Interpretation, Conclusions, Implications, and Future Directions, bridges the analysis and the results with the content of the books. It looks at particular salient relationships within clusters, such as the relationship between author perspective and discussion of alternative interpretations and between clusters, such as those between causal explanations and metadiscourse. The chapter includes a discussion of the different kinds of generalizations present in the books, a question that had been asked in the design of the study. And finally, conclusions, implications, and future directions for research provides a broader perspective for the study.
Chapter VII

INTERPRETATION, CONCLUSIONS, IMPLICATIONS, AND FUTURE DIRECTIONS

The purpose of this study was to discern through content analysis, the occurrence of disciplinary coherence in a sample of historical nonfiction and biography, written for children, and selected from the Orbis Pictus Award list of winners and honor books. The content analysis was accomplished by identifying the occurrence of vocabulary definitions, informational and attitudinal metadiscourse, the author perspective, generalizations and supporting information, discussion of source reliability, conflicting sources and alternative interpretations, socio-cultural identification, the presence of explicit causal explanations, the integration of primary sources, and captions that elaborate on generalizations or causal explanations. These characteristics comprised the variables in the four research instruments: The Contextualization Research Instrument, The Domain Knowledge Research Instrument, The Interrelationships Research Instrument, and the Integration of Primary Sources Research Instrument. The instruments were used to measure the variables in three passages, beginning, middle, and end of the books. The length of passages was based on a one to three proportion to the total number of words in the running text.

Interpretation

Quantitative studies cannot capture the flavor of book passages. Crismore (1983) comments on this component to analysis of content, “The categories chosen for quantitative analysis needs illustration by direct quotation in order to see presentation,
style, and patterns of use” (p. 26). The books have shown characteristics of coherence that are statistically significant. The analysis has shown how characteristics are related. But what do the relationships mean in terms of the books themselves? What are outstanding results from the study that takes the reader back to the books? The following discussion explores the content of the books in terms of particularly strong and interesting relationships borne out in the analysis of the data.

Presence of the Author

Hedging and emphatic metadiscourse. The results show that the strongest relationships among the composites in metadiscourse are between hedging and emphatics. Authors use them in tandem. In her book, The Great Little Madison (Fritz, 1989), provides examples. At one point in the biography Fritz wonders about the extent to which James knew, or knew about, his future wife. She had recently returned to live in Philadelphia, after staying in the country outside the city to avoid the yellow fever epidemic that killed her first husband. Fritz writes,

Undoubtedly James heard of her and since she lived just a block from where Congress met, he may even have seen her. . . . Indeed, possibly through seeing her and certainly through hearing about her, she worked on James’s imagination until he was almost persuaded that she was the One. (p. 70)

In this excerpt, the words suggesting certainty are punctuated by hedging. Undoubtedly he heard of her, he may have seen her, and then “Indeed, possibly through seeing her . . .” are two examples of the playing hedging against emphatics. The counterpoint of hedging and emphatics appears as a balancing of statements through the text. They add to the vitality of the already lively explanations but restrain the author’s
interpretation. For instance, later in the biography, after Dolley and James are married and James is on the threshold of retiring from public service, the national situation forces a change of plan. The change is echoed in Fritz's voice. She writes,

Did Madison really think he could keep out of politics at this critical point in the nation's development? He said so. When a delegation of Republicans called on him to ask him to run for the state legislature, he said No. He said No several times. He had retired. But then he was told Patrick Henry might be running—not to support his principles but simply because he hated Madison and Jefferson so much. Well, in that case, Madison said, he would run. And of course he was elected. (p. 82)

This passage shows doubt or question, did he really think he would stay out of politics? The question is interwoven with emphatic statements, in the repetition of statements: he said no, and then said no again. Madison gave his reason. He had retired. Fritz's work (1989) is the premier example of hedging metadiscourse in the collection. In the bivariate correlations and scatterplots of the data, she is the outlier. In The Great Little Madison (Fritz, 1989), the author's questions, wonder, and conjecture thread through the text as lacework.

Although the results show that the relationship between hedging and emphatics is stronger than the one between hedging and evaluation, in her book, Joan of Arc, Stanley (1998) provides extraordinary examples of both. And she provides examples of evaluative language, sometimes explicit, as when she writes of the results of Joan's trial, "What a terrible way to die!" Often the language is lively. The brave French soldiers are
pitted against the disrespectful English. Stanley lets the reader know what she thinks of the people who cross the stage of the biography.

Metadiscourse, author perspective, and discussion of conflicting sources and alternative interpretations. The results show that author perspective is related to discussion of conflicting sources and the discussion of alternative interpretations. These three characteristics are more likely to be related together than the discussion of both conflicting sources and alternative interpretations are related to hedging. In fact, the relationship between hedging and discussion of alternative interpretations is statistically significant, but the relationship between hedging and discussion of conflicting sources is not. This suggests that alternative interpretations carries with it more of a quality of conjecture and doubt than conflicting sources.

Author perspective and discussion of conflicting sources or alternative interpretations. The results of the analysis show that the relationships between author perspective and alternative interpretations are particularly strong and stronger than the relationships between author perspective and conflicting sources or hedging metadiscourse. This means that where author perspective occurs, alternative interpretations, and to a lesser degree discussion of conflicting sources and hedging metadiscourse, also occur. We Have Conquered Pain: The Discovery of Anesthesia (Fradin, 1996) provides examples of the relationships. In his introduction to the stories of the four discovers of modern anesthesia, Fradin explains, "As preparation for writing this book, I have visited numerous sites associated with the four men, and have examined records and journals dating back 150 years. My conclusion is that each of the men deserves at least partial credit for anesthesia" (p. xi). Fradin explains his perspective and,
at the beginning of his book, discloses his solution to the puzzle of who discovered anesthesia. In the ensuing chapters he weaves the lives of the individuals together, introducing and discussing the life and work of one and then moving to a different geographical location where he describes the life and work of another. As the book progresses, the lives of three of the discoverers become intertwined. One death, one suicide, and one man driven to insanity are the results of their interactions. Fradin’s perspective in the beginning provides a beacon through the narratives.

At the end of the book Fradin (1996) explains how each discoverer has been exalted by separate constituencies, arguing the primacy of their candidate, and comes back to a reprise of his perspective. He writes, “From time to time we authors revive the controversy, too, often viewing it in startlingly different ways, depending on our viewpoints” (p. 138). He summarizes historians’ alternative interpretations of the accomplishments of the four men. Fradin writes,

Perhaps the wisest final verdict is that of Dr. J. Marion Sims, who felt that all four men deserve at least some of the credit. If we think of a discoverer as the first person to use a new process, then Susan B. Deaver is right—Crawford Long was the discoverer. Unquestionably Horace Wells was the first to make widespread use of anesthesia in a populous area . . . William Morton deserves a world of credit too, for he made anesthesia an accepted part of medicine. As for Charles Jackson, he destroyed his credibility . . . yet it is undeniable that his suggestions played a key role in Morton’s success. (pp. 138-140)
He peppers his summary with metadiscourse. For instance, he opens with “Perhaps.” Later in the excerpt, he uses another form of metadiscourse, emphatics, with the term, “Unquestionably,” and the phrase, “It is undeniable.” As much as author perspective and alternative interpretations have a strong relationship, hedging and author perspective are related, almost as though the author steps forward tall, outspoken, certain, and then defers to the rigors of thoughtful historical interpretation by questioning his evidence and his conclusions. Fradin (1996) provides examples of the strong relationships among these characteristics that emerged in the results. The point is that authors wrestle with the credibility of their sources and they puzzle over their interpretations. Hedging and emphatics demonstrate this process of weighing information in terms of the author’s perspective, the author’s understanding of the context of the documents and their writers, and the author’s assessment of the credibility of conflicting sources.

Reference to another much shorter book than We Have Conquered Pain: The Discovery of Anesthesia (Fradin, 1996) provides a fine example of the relationship between author perspective and alternative interpretations. In the opening section of her book, Joan of Arc, Stanley (1998) explains the context of the wars between England and France in the period when Joan was born. Stanley draws a picture of the deals, deceptions, and royal marriages to ensure alliances, in the midst of which the people of France worked to maintain their meager and beleaguered livelihoods in spite of the battering hundred years’ war. Their lives are miserable and unstable. Their towns are ransacked and farm products are purloined for the military effort. Stanley writes,

And then the miracle occurred. It came not from the halls of wealth and power but from a remote and humble village called Domremy. From
that unexpected place an illiterate peasant girl, still in her teens, set out on a quest that would change the course of history. She had been born around 1412, though we don’t know the exact date for sure. Peasants in those days did not keep records, and few of them knew their own age. (unpaged)

This passage provides an example of the connection between hedging metadiscourse and author’s perspective. Stanley (1998) says that “we don’t know for sure,” and then accounts for our not knowing. Stanley’s use of metadiscourse percolates through the text in the graphic language she uses as well as in her comments on the information.

Through the pages of Joan of Arc, Stanley (1998) recounts the journey Joan takes in helping her country slough off the occupation of the English, her betrayal, the trial, and finally, Joan’s execution by fire. In the last section, Stanley summarizes the rehabilitation instituted by the King of France. Stanley has pointed out on several occasions actions Joan had taken on his behalf, and instances of Joan’s recognition of him as King. Her life was committed to being of service to him, and she recognized him as a King when he didn’t see himself as one. In the epilogue of the book Stanley reminds the reader of Joan’s belief when she writes, “Charles was well on his way to becoming the good and serious king Joan had always believed him to be” (unpaged). At the end of the epilogue Stanley steps back, recapitulating her perspective she had mentioned in dramatic language at the beginning. She refers to one of the concerns of historical writing, the nature of historical sources. She explains that we know more about her than any other woman who lived before modern times, because of the transcripts from her trial and rehabilitation. But she expresses a sense of question as she introduces alternative interpretations. She writes,
But now that we have the story, what are we to make of it? How, in reading a historical account that is based on hard facts and documentary evidence, are we supposed to make sense of miraculous visions and voices? Depending on our point of view we can account for them in one of three ways. First, they were exactly what Joan said they were: divine revelations. Second, they were hallucinations . . . And third, seeing the terrible state of her country . . . she began to wish that she was the chosen one. (unpaged)

Like Fradin (1996) in his reference to attributing credit for historical accomplishments, Stanley makes a reference to historical thinking and controversy in writing, “no historian has been able to do more than spin the occasional theory. Sometimes, in studying history, we have to accept what we know and let the rest remain a mystery” (unpaged). The reference to historical thinking and understanding, exemplary in these books is not absent from others. At the beginning of his book, Now is Your Time: The African-American Struggle for Freedom, Myers (1991) tells the reader, “What we understand of our history is what we understand of ourselves” (p. ix). He accounts for this in writing, “events of the past cannot change, but they can change in our perception of them” (p. ix). Myers places himself squarely in the midst of his epochal narratives of individual lives that he has included in the book, as he writes, “I claim the darkest moments of my people . . . I claim the joy and the light and the music . . .” (p. x). Events in the lives of his family thread through the stories of the white colonists and the African people brought to America to build and sustain it as he explains his perceptions of the historical record.

Metadiscourse and causal explanations. Just as hedging and emphatics are most strongly associated, hedging and, to a lesser degree, emphatics are strongly related to
causal explanations. How does this look in the books? In her book, *The Many Lives of Benjamin Franklin*, Osborne (1990) introduces the reader to the Franklin family in the introduction. She explains that when Ben was born, his father, Josiah Franklin, “probably delighted in the fact that Benjamin was the youngest son of the youngest son for five generations” (p. xi). She explains what this means and then writes,

Perhaps this was a lucky omen, for one day this youngest son would grow up to be one of the most amazing persons who ever lived. Not only would he become one of the founders of the United States, but he would also become an important writer, an extraordinary diplomat, a fine scientist, and a great inventor. (p. xi)

In this passage Osborne’s (1990) hedging and brief causal statement are close together. Perhaps his position at birth was a lucky omen because one day this youngest son would grow up to be one of the most amazing persons who ever lived. Osborne suggests a possible relationship between Franklin’s origins and his destiny.

At other points in the book, Osborne (1990) begins a causal statement with uncertainty or wonderment. When Ben goes to France, to meet with King Louis XVI and plead for support for the American colonies, as an American emissary during the American Revolution, he dresses simply, an act unheard of in the French court, where dress followed strict conventions. But the King is enthusiastic about the man and the mission. Osborne writes,

Perhaps the king would not have been so enthusiastic if he could have seen into his own future, for thirteen years later, encouraged by the American
example, the French people overturned the dictatorship during the French Revolution and both the king and his wife were guillotined. (p. 99)

Again, Osborne couches information and causality in uncertainty about a person’s thinking and feeling. Causality is fraught with human motivation and feeling, the reader is encouraged to believe. Motivation and feeling are considered in causal explanations of people’s actions. But more importantly, the metadiscourse allows for a conversation between writer and reader about people’s thinking, their feelings, and their motivations, from the author’s perspective.

Osborne uses emphatic as well as hedging metadiscourse in making her presence felt in the text. Earlier in the biography, she explains the background for the French and Indian War which predated the American Revolution by thirty years. In face of the threat of war, Franklin recommended that the colonists unite under an English governor appointed by King George II. No one liked the idea. The King preferred to send his own soldiers because he was afraid that if the colonies were united, they might someday try to fight England. Osborne writes that Franklin “was not in the least considering a fight with the English” (p. 58). He still thought of England as his mother country. “After all, his father had come from there, . . . So Franklin supported the British soldiers fighting on American soil” (p. 59). Osborne emphasizes what she imagines would have been Ben’s sentiments and suggests his motivations. He has done well in the New World and feels a kinship with England. Of course, Ben considered himself English. His father was a recent immigrant to the New World. Because of these connections, Ben supported the idea of an English presence, at the time, and even worked to raise supplies for them.
The passages in Osborne’s (1990) biography of Benjamin Franklin merit interpretation in relation to historical understanding. How does one account for judgment, emphasis and doubt in historical accounts? One of the premises of this study is that historical thinking is a matter of selection and interpretation of information. In writing a coherent text, authors explain their interpretation of evidence. Authors remind the reader of the interpretive quality of their work by using metadiscourse. But accounting for doubt and emphasis goes deeper than attributing it to the nature of interpretation and perception. Wineburg (1999) writes about one challenge of historical thinking. He asks, “How do we bracket what we know in order to understand the thinking of people in the past? This is no easy task” (p. 492). Historical expertise, he writes, is not in the sweeping knowledge of the topic, but in the ability to get a fix on what one does not know and to generate a road map to guide new learning. Wineburg refers to this facility as the cultivation of puzzlement, where the reader, or the writer, recognizes limitations in understanding. We are as much historical beings as the individuals about whom we read and write. The enduring question is “How do I know what I think of the event or the person involved in it, and what more do I need to know?” or, “I just don’t know enough to be able to say.” Such questions are guideposts of historical interpretations.

Wineburg (1994) writes “trying to shed what we know to glimpse the ‘real’ past, is like trying to examine microbes with the naked eye: The instrument we abandon is the one that enables us to see” (p. 492). In her weaving together causal explanation and metadiscourse, Osborne appears to combine the seeing of the information with a recognition of the person seeing it, that is, recognition of the author’s interpretive voice. Osborne explains causal explanations, connecting motivations and events, but prefaces
them with puzzlement, in order to bridge what she knows in the present, with what people knew and did in the past.

Certainly, Stanley (1998) in Joan of Arc, Fritz (1989) in The Great Little Madison, and Fradin (1996) in We Have Conquered Pain: The Discovery of Anesthesia, also cultivate puzzlement in their interpretations, perspectives, judgments, and doubts. A number of books in the collection share this quality. Among them, in the The Great Fire, Murphy (1995) ponders long and deeply on the underlying tensions that provoked the blame laid on different people for the fire. He revisits the conflicting sources recounting specific events and discusses the alternative interpretations of the whole sequence of events. He comes back to the uncomfortable yet persisting idea that an insidious phenomenon of differences in class and ethnicity were key in people's understanding of the great fire. He goes on to say that the same insidious phenomenon is at play in urban settings today in the people who have power in wealth and connection, attributing events and circumstances to the people who do not.

In his book, The Life and Death of Crazy Horse, Freedman (1996) introduces the drama of the final moments before Crazy Horse dies, with the statement, "The events will always be uncertain. Eyewitness accounts differ, for the people who were there that day saw what they wanted to see and reported it from their personal points of view" (p. 147). Then Freedman creates the setting. He writes, "As Crazy Horse was being taken to the guardhouse, he must have realized what was happening. He may have caught a glimpse of other prisoners . . ." (p. 147). Freedman, like the other authors, cultivates puzzlement in his making a bridge between what he knows in the present, with what can be known about the understanding the people in the past had of the events.
In her book, *Shipwreck at the Bottom of the World: The Extraordinary Story of Shackleton and the Endurance*, Armstrong (1998) brings the members of the expedition forward to give a perspective on information about living things in the Antarctic. They exude over the refining of the whale oil at the factory and describe the sounds and behavior of the animals that live nearby. Just as Armstrong has the crew emphasize information, in *Anne Frank: Beyond The Diary: A Photographic Remembrance*, van der Rol and Vierhoeven (1993) have Anne explain the abundant photographs through lengthy quotations from her diary. Anne emphasizes certain information, and ponders over the explanation of other events. Metadiscourse is present in the voice of the author and is present in the voices of the people whom the author has included in the book.

**Metadiscourse and primary sources.** The results indicate that when two books are removed from the correlations between variables in the primary source and metadiscourse groups, the correlations increase. Generally, metadiscourse and primary sources are weakly associated, but when *The Great Little Madison* (Fritz, 1989) is removed three correlations increase in statistical significance. These correlations involve the name and description of the primary source, source as support for a generalization, and transitional phrase or statement. Perhaps this result is more intriguing than it is unexpected. When an author gives just a name of a primary source, question of emphasis might not be expected. A name is a name, unless, of course, doubt as to the attribution of the source remains a point of contention in history. The closest the books in this collection came to doubt about specific attribution of the source is where an author, such as Cox (1997), makes reference to several witnesses, or one reporter’s statements.
Where the author also describes the source, either the professional position of the source, or her relationship to the event or person about whom she speaks, she introduces an element of selection and interpretation. In the description the author decides what is salient about the source in terms of the quotation, but also in terms of the author’s purpose for writing. For instance, in their book, *Bound for America*, Haskins and Benson (1999) note that one source, describing the prisons where African captives were held, was a doctor. The attribution suggests perspective of the source, that possibly he is objective and perhaps his is a humane, health oriented perspective rather than one that is profit oriented. Haskin and Benson describe a ship’s officer, on board a vessel that rescued slaves from Spanish slave ships off the coast of Africa and, again, the description serves as indication of perspective. The authors suggest that the slave trade was a complex network of people aiding and abetting the harvesting of humans for profit, as well as resisting it, and included those who would see the business vanquished as much as those who would see it developed. Although Haskins and Benson do not express uncertainty about their sources, they do demonstrate the interpretive nature of describing sources. This interpretive quality in attributing sources, supporting generalizations, and making connections between the source and the running text is connected to the author’s voice in metadiscourse. The connection was demonstrated in the statistically significant results of the analysis of data. The correlations among these characteristics were strong.

**Domain Knowledge: Big Ideas, Themes, and Supporting Evidence**

Domain knowledge and generalizations. In the proposal for this study, one of the expected outcomes was that generalizations and primary sources are related. The results showed that composites of domain knowledge, among them, across the page
generalizations, supporting facts, elaborated and descriptive facts were related to primary sources at the level of statistical significance. More than any of the other four groups, domain knowledge and particularly generalizations, were related to all of the other groups. Two questions guide this discussion and were posed in the proposal to the study. The first one is what are the kinds of generalizations that authors make? The second one is, to what extent do generalizations about people in biography, differ from generalizations about events in historical nonfiction?

**Kinds of generalizations authors make.** Generalizations, the large or powerful ideas that provide the nuclei for networks of information and that encourage readers to think about their own experience, have in turn a broad and narrow scope. Generalizations can be sweeping. Giblin (1993) writes, “Chairs tell us about the values, life style, and traditions of people,” in the beginning of his book, *Be Seated: A Book About Chairs*. The supporting evidence weaves through the book in his discussions of thrones of Kings and Queens of Europe, Africa, and India. Giblin includes a long narrative of the Roman house of a wealthy person and explains it will have a chair for the master, but people of more modest means do not have chairs. The craftsmen of early America developed the spare, yet elegant Windsor chair that was wildly popular with people, regardless of class and position, and became popular in Europe.

In their book *Bound for America: The Forced Migration of Africans to the New World*, Haskins and Benson (1997) make sweeping generalizations about history, that they support in brief strokes. In their introduction, Slavery in History, they write, “Treatment of slaves and their rights, if any, varied with the culture and the times” (p. 4). Then they provide supporting evidence, that in some cultures slaves were imprisoned in
place of their owners or buried with them when they died. In their introducing the context in which Columbus went to the New World, they write, “The level of everyday violence was high . . . life for ordinary Europeans was difficult” (p. 6). They support their broad generalization with a quick sketch. The Spanish Inquisition discovered and punished Jews, Muslims, and converts to Christianity suspected of heresy. Ordinary people were illiterate peasant laborers bound to the land suffering from the effects of plague, famine and a high rate of infant mortality.

Other generalizations in the book have a variety of detail, like hues added to build up depth and volume in an oil painting. Haskins and Benson (1998) reiterate their generalization that the slave trade, the kidnapping, was, from the beginning, inhumane and cruel. The African models of enslaving vanquished people was only one cornerstone to the foundation of the inhumanity of the European enterprise. The authors support their generalization through the book, paragraph by paragraph, in their descriptions of the branding of the people, of the slave ships, of the living conditions of the people on board, the practice of throwing sick people overboard, the force feeding of those who wanted to starve, and the torture of those involved in plotting insurrections. Their support of generalizations is elaborated upon by what Europeans and Africans wrote of their experiences. Haskins and Benson do not return to the idea of hundreds of years of inhumanity, but, instead explain that the Africans, through their “strong sense of hope and self-worth . . . helped build a new culture with their music, their humor and their skills in such areas as agriculture, metalworking, . . . and medicine” (p. 43).

Shorter books like Bound for America (Haskins & Benson, 1997), challenge writers to be economical in how they connect information. In her book, Mapping the
World, Johnson (1999) writes, “Whether they are based on the reports of travelers or on the latest images from space, all maps have stories to tell” (p. 4). Her questions about the stories establish the points she makes in her history of maps. Who was the map maker? How was it made and for what purpose? And finally, what is the picture of the world “reflected in its lines and shapes?” (p. 4). In each chapter she tells the stories by answering these questions. At the end of the book she says that when we sit down and draw a map on the computer we are following in the footsteps of “all those mapmakers of the past who did their best to represent in pictures the world and all its parts” (p. 30). Just as Giblin (1993) does in Be Seated: A Book About Chairs, as he makes a generalization at the beginning and returning to it in the end, Johnson does in her picture book.

Jurmain (1989) creates a rich matrix of generalizations within generalizations. She begins her book, Once Upon A Horse, by honoring men and women who changed the course of history. Then she says that one of the most important, and unacknowledged, characters in human history is the horse, who has helped to build and destroy nations for centuries. She restates the idea as she writes, “For six thousand years horses aided humans in changing the world” (p. 9). Through the book she demonstrates how the horse has accomplished the assistance. In the final chapters she alters the terms and refers to the mutual accomplishments of man and horse, as a partnership. Jurmain says that the horse is one of two animals that forms bonds of friendship with humans. The other is the dog. Yet the flow of history is interrupted, the partnership has fractures. She writes, “In the New World the end of the Ice Age signaled the end of the horse’s existence” (p. 18). She poses questions to account for the disappearance: “Were they slaughtered by human hunters? Did they die because of a change in climate made food scarce?” (p. 18). Horse
and man had evolved over the millennia yet, "soon after 11,000 B.C., all the horses in North and South America perished—no one knows why . . . Theories are plentiful, but only one fact is certain: by 9000 B.C. there were no live horses on the American continents" (p. 18). The dramatic first chapter ends with a sketch of mankind from 11,000 to 3,000 B.C and picks up the story of the partnership in Asia.

Fradin (1996) connects generalizations together. One generalization becomes subsumed under another. For instance, Fradin writes that little progress in science was made during the middle ages and provides supporting evidence. People’s religious beliefs were prohibitive, and individuals who countered church doctrine by advancing scientific ideas and findings were imprisoned. Within his discussion of the lack of scientific progress, Fradin includes a generalization related to suffering and pain, that strange concoctions were believed to treat sickness and disease. A few of the remedies included giving gingerbread in the shape of the sick person to beggars, wearing charms around one’s neck to keep disease at bay, and intoning the word “abracadabra,” a word whose origins, Fradin explains, is unknown.

While generalizations may have a broad scope, needing the entire text for information to support them, or may sweep across hundreds of years of human experience, other generalizations concern more immediate information, referring to specific people at specific moments. One example of this kind of generalization comes from What’s The Deal: Jefferson, Napoleon, and the Louisiana Purchase, where Blumberg (1998) describes the former slave and revolutionary leader of what is now Haiti, Toussaint L’Ouverture. “Although his official title was Governor General, he acted like a king” (p. 66). She explains his actions that show this pomp and ceremony. He
built a palace for himself and dressed in the finery of European aristocrats. He
"surrounded himself with body guards who were clothed in colorful, full-dress French
uniforms" (p. 66). Although he negotiated treaties with the United States, he declared he
was a loyal French citizen.

Blumberg (1998) makes summary statements of complex relationships that
become generalizations to be supported in the next part of her book. In the first chapter,
Blumberg describes the complex relationships of the Spanish, French, and British in
North America at the end of the eighteenth century. France, under Napoleon Bonaparte,
was determined to get back the colony of Louisiana that the King Louis XIV had given
away to Spain. The Spanish feared the British who dominated the eastern side of the
Mississippi, smuggled goods, incited Indians against the Spanish, carried fur and produce
down the river, and sold food and supplies to the people of New Orleans. The Spanish
were frustrated they could not control the river, and yet they depended on the British. The
French were keen on weakening the English and allied themselves with the colonists. The
Americans told the Spanish that should the Americans lose the war of independence, the
British would attack New Orleans. Spain was delighted by the Treaty of Paris, but, as
Blumberg points out, "Spanish elation evaporated when it became apparent that the
United States, whose independence Spain had helped to bring about, had replaced
England as a country to fear" (p. 29). In the next chapter, she explains the details of how
the United States came to be feared. Her summary statement becomes a generalization for
the relationship between Spain and the new United States.

Distinctions between generalizations about people and generalizations about
events. To say that there is a clear cut distinction between the generalizations about
people and those about events may be simplifying a complex quality of the books. How does one define the difference between the theme in the Great Little Madison (Fritz, 1989), that although the small, feeble man had a tiny voice, he had a great mind, wrote powerful, forceful words, and stood alone against slavery, and the generalization in Be Seated: A Book About Chairs (Giblin, 1993)? In his book Giblin says that how and where we sit demonstrates our values, life style, and our sense of power. So where can the reader make the distinction between generalization or theme in a biography and generalizations about events and about people? A theme is an abstract statement describing a characteristic of one person, whereas a generalization is an abstract statement applicable to many people or events and situations. The distinction is not so clearly made because themes of people’s lives are woven into generalizations about the times and circumstances in which they lived, as the following example demonstrates.

In her book, In Search of the Grand Canyon: Down the Colorado with John Wesley Powell, Fraser (1995) explains at the outset the Powell was a man of great resourcefulness. He had infinite respect for his crew and above all else he appreciated the beauty and significance of natural resources of the American West. The theme of his life and work becomes a reprise at the end of the book, as Fraser explains his advocacy of protecting and conserving the country’s resources. He knew that the key to the history and future of the western United States was the water of the Colorado River.

The overarching ideas that thread through biography serve a similar function to those that thread through historical nonfiction. They serve to provide a context for information and connect the facts of a person’s life in a network of events, statements, and relationships. Perhaps the distinction between theme and generalization is more a
result of the quality of nonfiction literature, of the trade books written by individual authors, than it is a matter of a categorical definition. Generalizations in trade books are not necessarily those listed in curriculum guides in the social studies. The overarching ideas of trade books are the results of the research and pondering of the individual authors. They are the result of author’s interpretation and selection of information as much as their purpose for writing.

However, the sample of books suggests a difference can be made between the presence of what might be called a theme in a book and generalization. In her book, *Free To Dream: The Making of a Poet: Langston Hughes*, Osofsky (1996) uses the poet’s language as the theme for his life. All his life as a child, boy, and man, he was left with a lonesome feeling, yet given to adventure and discovery, following his dreams. In other books, the theme is set in a cadence that is poetic and musical. At the beginning of her biography, *Duke Ellington*, Pinkney (1998) writes, “You ever hear of the jazz-playin’ man, the man with the cats who could swing with his band?” (unpaged). Pinkney brings music and poetry to the theme of the biography. In a sense the question suggests what is to come but it also becomes a thread weaving the different parts of the biography together. The opening question animates the descriptions of how Duke Ellington supported and cultivated his musicians. She writes,

> Each instrument raised its own voice. One by one, each cat took the floor and wiped it clean with his own special way of playing. Sonny Greer pounded out the bang of jum-robe feet on the street with his snare drum. A subway beat on his bass drum. . . . Along with Sonny, Joe “Tricky Sam” Nanton went to work on his trombone, sliding smooth melodic gold. He
stretched the notes to their full tilt, pushing and pulling their tropical lilt.

When Tricky Sam was through, he'd nod to Otto "Toby" Hardwick.

"You're turn he'd say. . . . (Unpaged)

Pinkney (1998) returns to the theme in her synopsis at the end of the book. She writes, "Because of Duke's genius, his Orchestra had a musical mix like no other. Now you've heard of the jazz-playin' man. The man with the cats who could swing with his band" (unpaged). The final comments make Pinkney's opening question more than an engaging lead. It becomes a thread that she picks up in later passages. Pinkney writes, "His influence on the history of music—and on musicians everywhere—continues even today" (unpaged). The other biographies mentioned in this discussion suggest themes of people's lives, the analytical introspection of Anne Frank and the passionate and devoted relationship of Clara Schumann to her piano and the man she loved. Implications of the interpretation related to themes and generalizations are discussed later in this chapter.

Domain knowledge and primary sources. Authors support generalizations about their subject with primary sources. But the generalization becomes a theme for the content. For instance, in her book, Clara Schumann: Piano Virtuoso, Reich (1998) writes of the new marriage between Robert and Clara. "For Robert, marriage to the famous Clara was not easy" (p. 52). Over the next few pages Reich explains the generalization about their relationship. He couldn't compose when they traveled and felt snubbed when she was invited to parties without him. He was plagued by illnesses. Reich elaborates on his choices to not go with Clara, in the interests of his work, by quoting his letters. In one Reich has included Robert writes, "Still no news from you, my Clara. Have you forgotten me already? Yesterday I could hardly bear the melancholy that overwhelmed me. This
desolation in the house, this emptiness in me” (p. 53). Set off in italics the quotations showed how his difficulty in traveling with her was surpassed only by his misery and longing for her when he did not go. The relationship between them was passionate and devoted, for their whole lives, yet it was beset with difficulty and obstruction from the beginning. Although Robert cannot surmount his misgivings, Clara perpetuates his music throughout her lifetime and in her later years has his papers published. The generalization about Robert’s difficulty in traveling with his celebrated wife represents, in miniature, the broader themes of Clara’s life as Reich as depicted them.

Generalizations and their support about people and events occur in a short span of text, over a number of pages, and recur across the book. They can be supported by descriptive and explanatory information, by narrative, or with primary sources. In the books of this study, explanatory, descriptive information and the primary source as a support for a generalization were the most consistent measures of supporting evidence. In *The Fiery Vision: The Life and Death of John Brown* (Cox, 1997), a generalization about slavery in the early nineteenth century, in terms of its dollar value, is connected to the generalization that proslavery forces were unstoppable with the announcement of the Dred Scott decision. Detail about the court, about the President and about Brown’s campaign elaborate upon the complexity of the period surrounding the decision. (Cox says that the President had pressured the court to issue a proslavery ruling. How he knows this and what the pressure was, Cox doesn’t say.)

Cox reminds the reader of a generalization, that threads through the book. In response to the judge’s wife suggesting Brown take revenge on the death of his son at the hands of the proslavery forces in Kansas, Brown says, “I do not make war on
slaveholders, even when I fight them, but on slavery.” As part of the elaboration surrounding different events in the book, Cox returns to this statement of belief that guides Brown’s behavior.

Just as Giblin (1993) returns to his overarching generalization through his book, *Be Seated: A Book About Chairs*, in his biography, *Fiery Vision: The Life and Death of John Brown*, Cox (1997) repeats the theme that guided John Brown’s life. Brown was against slavery not slave holders and the distinction guided everything he did. Cox introduces the seminal experience that was the source of Brown’s vision. As a young man, during a visit with a land holder, Brown became haunted by the mistreatment of a boy slave who worked to please his master. Cox recapitulates the experience at different times, and during different events, through the biography. For instance, where Brown might have practiced retribution against individuals, he chose not to, even when prodded to do so. Brown’s beliefs regarding his actions are reiterated through the book. He does not seek revenge, his aim is to free the people.

In her book, *Clara Schumann: Piano Virtuoso*, Reich (1999) has included excerpts from letters and diary entries that provide detail to her generalizations about Clara’s life. In a sense, Reich brings Clara, Robert, and their family and associates onto the stage of the biography, to tell their views of the events. In *Shipwreck at the Bottom of the World: The Extraordinary True Story of Shackleton and the Endurance*, Armstrong’s (1998) quotations have come from a number of sources among the crew members. They come from the diaries of Sir Ernest Shackleton, leader of the expedition, called Boss among the crew members, Frank Wild, the Second-in-Command, and Frank Hurley, the expedition photographer. Shackleton had made sure the diaries of the crew members would become
property of the expedition once it was completed by including the stipulation in the crew’s contract. Among the crew members were scientists, a geologist, physicist, biologist, meteorologist, and two surgeons. Their dairies are quoted throughout Armstrong’s text and in the captions. For instance, in a caption adjacent to a photograph of two seals facing one another, mouths agape, is the quotation,

Bull Elephant seals on South Georgia Island. Meteorologist Leonard Hussey described the noise that sleeping elephant seals make is “suggestive of a nightmare or a guilty conscience. The inspirations of the breath are irregular gasps, the expirations tremulous wheezes. The body shakes violently from time to time, and the foreflippers are ever nervously moving about.” (p. 15)

Armstrong (1998) has identified the animals and has reminded the reader of Hussey’s position. The information in the caption is different from that in the running text, where Armstrong discusses the character of the whaling community on South Georgia Island near Antarctica, and to the delayed schedule of Shackleton and his crew. The caption gives a glimpse of the writing style of the scientist, as though another voice from the expedition speaks up during an ordinary day in the Antarctic spring. Armstrong’s text and captions have rich social interconnections. Many people are all on the stage of her narrative at the same time. Their quotations are accompanied by the confrontational elephant seals on one page. On the other page is a quotation over an illustration of whales and factory in the background. Armstrong writes, “According to Hussey, the harbor had “the appalling stench from the dead whales moored in the harbor awaiting flensing” (p. 14). Armstrong uses captions to give contextualized definitions for
technical vocabulary. In the same caption she writes, “A blue whale being ‘flensed’ at Grytviken. The whalers strip the carcass of blubber and boil it down into oil” (p. 14).

Like, Fradin (1998) and Fritz (1989), Armstrong lets the people in her book explain their experience. Van der Rol and Verhoeven (1993) have Anne explain the lives of the families hiding in the annex in both broad strokes and in fine detail. The authors make sure that Anne’s introspection and self-analysis is constantly present through all the little stories she tells of their lives together.

In the introduction to his book, *Fiery Vision: The Life and Death of John Brown*, Cox (1998) writes, “Historians routinely use such words as ‘fanatic’ and ‘murderer’ to describe him, but use no such words to describe the slave owners and slavery supporters he fought” (p. vi). Throughout his book are photographs of John Brown, the most poignant of which shows Brown toward the end of his life and just before the raid on Harper’s Ferry. The image shows a gently smiling Brown with neatly combed hair, wearing a dark suit and white shirt. On the photo is a handwritten caption, “... loaned by me, Annie Brown. Regarded as the best picture by the family” (p. 153). Annie was one of John Brown’s daughters. The caption to the photograph gives credence to Cox’s sensitive consideration of John Brown, in the terms of the words of the man and of the people who were close to him.

No book in the sample has as many quotations from primary sources as this biography of John Brown. Cox (1998) has let the man speak for himself. For instance, during the process of gathering support for his campaign against slavery, Brown has long plenary conversations with Frederick Douglass, and other abolitionists. Douglass explained that the raid on Harper’s Ferry would be an attack on the Federal Government.
He said, “I told him he was going into a perfect steel-trap, and that once in, he would not get out alive” (p. 146). Cox explains that they had been arguing for days, when Brown finally said, “I want you for a special purpose. When I strike the bees will begin to swarm, and I shall want you to help hive them” (p. 146). Brown was as eloquent in his choice of words as he was dogged in his purpose. Cox lets the reader understand that Brown’s vision was the abolition of slavery, not wild-eyed revenge against individuals who killed members of his family in their effort to stop him.

As Armstrong (1998) does in Shipwreck at the Bottom of the World: The Extraordinary True Story of Shackleton and the Endurance, Cox (1997) allows the sources to explain events and circumstances from different perspectives. Brown’s letters to his family express his fears, hopes, and the reflections on the purpose of his life, as much as they report his journey. His letters weave events from earlier chapters that illustrate the lifetime of events that came before the raid, and Brown’s lifetime purpose. Through the words of Brown, Cox leads the reader to question the extent to which the attributes of fanatic and murderer are befitting the man.

Captions and Coherence

Captions and metadiscourse. In her book Prairie Visions: The Life and Times of Solomon Butcher, Conrad (1991) comments often and lovingly on Solomon Butcher’s photographs that illustrate the book. Conrad gives a different life to her captions, in which she is present. In one illustration a large group of children, clothed in their Sunday best, stand solemn around their parents. She writes, “I can imagine one of these boys making a break for the tall grasses!” (p. 19). In an illustration of a sod house, dug into the hill for protection from the wind, a wagon hangs precariously off the roof, two wheels in
the air, the horses, a bit uphill on firmer ground, still hitched and standing patient but with their ears flattened. Conrad writes, "Imagine coming upon a soddy like this in the dark, just as J. D. Strong did" (p. 32). Conrad frequently bridges her understanding of the present with her question and interpretation of the past as she does in comments, such as this one. In terms of the results of the analysis of the data, Conrad's book is one in which the voice of the author is related to the captions elaborating on generalizations. Conrad is an example where the author uses illustration to evaluate, emphasize, and wonder about the information. That captions would be related to coherence may be expected but that captions with different information from the running text should stand out as a characteristic contributing to coherence is less expected.

Authors tend to use captions to provide additional, related information to narrative and information. The captions in Conrad (1991) and Armstrong (1998) provide examples. Conrad shows that captions can be a significant place for the author to converse with the reader, constructing the context for the illustration, imagining being there, and questioning the illustration, as Conrad (1991) does in her book, Prairie Visions: The Life and Times of Solomon Butcher. Her book is the premier example of the author's participation with the reader in viewing and thinking about the illustrations.

Captions and discussion of conflicting sources or alternative interpretations. Alternative interpretations and conflicting sources form a strong relationship that is demonstrated in Fradin's (1996) book, We Have Conquered Pain: The Story of Anesthesia. Captions with different information form strong relationships with alternative interpretations and conflicting sources. This connection between captions with different
information from the running text and discussion of alternative interpretations or conflicting sources is as intriguing as it is unexpected.

The relationship between captions with different information and alternative interpretations suggests that in arguing alternative interpretations to historical accounts authors use the means at their disposal, besides the running text, to present all sides. For instance, to return to the book, *We Have Conquered Pain: The Discovery of Anesthesia*, Fradin (1996) argues that mutual credit be given to all four discoverers. He draws on other authority to support his position. The caption is connected to the illustration on the facing page from the text quoted above. It is a painting of the four men, their slightly elongated figures demonstrating elegance and stature. It was painted decades after their deaths. The caption reads, “This portrait at the International Museum of Surgical Science in Chicago is one of the few places in which . . . Wells, Long, Jackson, and Morton appear together” (p. 139). The caption adds to Fradin’s argument that all the men deserve at least partial credit for the discovery. Fradin comes back to his idea that they all worked on one discovery in dealing with physical pain and all deserve acknowledgment for the accomplishment.

Captions and primary sources. Two books in the sample are extraordinary in the richness and sheer volume of text. *Anne Frank: Beyond the Diary: A Photographic Remembrance* (van der Rol & Verhoeven, 1993) and *Shipwreck at the Bottom of the World: The Extraordinary True Story of Shackleton and the Endurance* (Armstrong, 1998) have more primary sources integrated into the captions than any other books. If captions have the potential of providing additional information and evocative detail these two books demonstrate the possibilities. In *Anne Frank: Beyond the Diary: A*
Photographic Remembrance, all of the primary sources are drawn from Anne’s diary. The running text is almost supplemental to the captions. For instance, in one part of the book after Anne and her family have gone into hiding in the Annex, and while describing a day in the lives of the families, the authors mention the complicated steps in getting food to the families. The staff had to use their ration stamps and had to wait for certain times of the day when they could visit the hidden annex. In the caption, Anne recounts an amusing moment in the midst of their trials. Peter spilled a sack of beans down the stairwell from the attic. The caption provides lively, illuminating detail to the text, but also reiterates an underlying theme of the book that Anne was as insightful and eloquent, given to moments of humor or perceptions of great pleasure. She also experienced deep sorrow since she was a young woman who felt alone and misunderstood.

Conclusions

What are we to make of these connections between the results of the analysis and the books? Wineburg (1991) noted that the results of his study of the historical thinking of secondary students and professional historians were expected but they were not trivial. The results of this study are not unexpected but they are not trivial. How are they not unexpected? First of all, in the sample of quality nonfiction historical literature written for children and young adults, authors have a purpose, a passion for their writing and they want children to know what it is. They want children to know how they got their information, what they thought of it, what drove them to the research in the first place, and how they put their findings altogether. The introduction to the book, The Amazing Potato: A Story in Which the Incas, Conquistadors, Marie Antoinette, Thomas Jefferson, Wars, Famines, Immigrants, and French Fries All Play A Part, (Meltzer, 1992) does all
these things for readers. Other authors tell their conclusions at the beginning and discuss their perspective on the topic as they recapitulate the conclusions in the end, as Fradin (1996) does in his book, *We Have Conquered Fear: The Discovery of Anesthesia*. Authors want children to understand their thinking and the ideas and insights they have gotten during their research. They connect the findings with their ideas about their topic.

That authors craft a context of information that gives detail of time, place, appearance of the people, their language, their learning, the things they liked, hated, wanted, dreamed of, feared, all the qualities that describe humans, was expected. Authors explain the motivations of people they include in their accounts. They describe the setting for events, and the conditions in which people lived and worked. They pose problems that individuals have to solve, the obstacles that need to be overcome, and the achievements of their effort. In other words, authors tell gripping stories. But the sample shows that the books are more than stories and that the authors purposefully and deliberately establish their position in sifting through evidence that are the building blocks of their accounts.

Beck, McKeown, and Gromoll (1989) revised textbooks so that information was connected to overall global ideas. Kintsch, Kominsky, Streby, McKoon, and Keenan (1975) found that the repetition of significant concepts and terms and explanation of how they were interconnected significantly improved students comprehension of major concepts and the recall of elaborative detail. The books in this study demonstrated that major ideas have abundant supporting and connected information, and that major ideas are stated and reiterated through the book. Authors come back to the meaning again and again, as Stanley (1992) has done in *Children of the Dustbowl: The True Story of the School at Weedpatch Camp* and as Haskins and Benson (1998) have done in *Bound for
America: The Forced Migration of Africans to the New World. Authors introduce guiding ideas and generalizations at the beginning and come back to them at the end of their books, as Stanley (1998) and Fritz (1989) have done in their biographies on Joan of Arc and James Madison, and as Giblin (1993) and Jurmain (1989) have done in their books about the chairs and horses. In his book, We Have Conquered Pain: The Discovery of Anesthesia, Fradin (1995) states his conclusions in his introduction and comes back to them again in the end. There he discusses what others have said that corroborated or challenged his position. In sum, the authors of books in this study, picture books, chapter books, biographies and books on historical topics discuss the importance of information in relation to their overarching ideas and generalizations. The study has shown that the books in the sample do what researchers in cognitive processes of reading and in content area learning have shown promote reading comprehension.

Beck, McKeown, and Gromoll (1989) compensated for the lack of background information that explained people's motivations for their actions by revising textbooks, elaborating on influences connected to events. But a reading of Osborne's (1993) biography, The Many Lives of Benjamin Franklin, or of Haskin and Benson's (1998) Bound for America: The Forced Migration of Africans to the New World, shows that authors of historical trade books craft rich contexts of information, definition, and description as they explain motivation for actions and the consequences of those actions. Authors draw attention to the statements their subjects make as Stanley (1998) does in Joan of Arc, and as Fritz (1989) does often in The Great Little Madison. In the study descriptions of the individuals, explanation of motivations and consequences in causal explanations were variables measured reliably across three passages. Significance of
events to the account might not be present through a book. Significance of events might appear at the end. The results of the study suggest that teachers need to know their books as they explore the potential for helping children learn disciplinary knowledge through nonfiction literature. To what extent is significance of events explained in the text? As an extension, how would children understand significance when they talk about the causal explanations in the trade books? The books do not take the place of good teaching and great conversations. Knight (1989) reported that when students were encouraged to question significance, to figure out the “why” of actions, children were better able to discuss the sequence of events than children who did not engage in such critical conversations. The books in the sample provide rich, supporting detail that could become the substance of discussions of significance.

Context is more than rich characterization. Context is the author’s perspective, and the author’s sense of the perspective of the sources in the book. It is also the context of the events that are described and explained. In a sense, authors do what the historians did in Wineburg’s (1991) study of historians envisioning a context of the event that the document explains. In their use of primary sources authors endeavor to build a context for their information. For instance, in her book, Clara Schumann: Piano Virtuoso, Reich (1999) explains how Clara built a performance and teaching career at the same time she was raising a family and loving a husband. Reich includes the voices of the children, in their letters, Clara herself, Robert, and their friends Johannes Brahams and Frederick Chopin give detail and others’ perceptions of her life. Not only do authors present voices of other individuals in their accounts, many of the books have abundant examples of how
the author participates in the text, not just at the beginning of the book, but all through it and in the captions.

The books provide opportunity for students to learn to recognize, explain, and support important, big ideas. The books show different kinds of generalizations, from the particular and the local, to big ideas that are introduced and then recapitulated in the end. Not only do students see how authors present important ideas and overarching statements about the content, they have the opportunity to distinguish between facts and interesting details and the overarching ideas.

The connections between crafting nonfiction literature and thinking like an historian include how authors corroborate one source with another. Teachers can show students how an author does this, as they compare one source to another. Murphy (1995) does this again and again in his book *The Great Fire*, as he goes back and forth among the witnesses whose accounts he has laced together through the book. White’s account differs from Frear’s in many ways. Where one saw orderly movement of people, especially those of the privileged classes, the other saw mayhem and looting, people dying in the streets from accidents resulting from incidents of theft and escape. What he saw among the privileged classes was not orderly. Murphy ponders these differences and digs into the character of the sources. He also accounts for the perspective of the sources. White did not watch the fire progress, he didn’t see what Frear saw. Also White, being the editor of the Chicago newspaper had influence in the community. He had a role of authority and was a friend of the wealthy, whereas Frear wasn’t so strongly invested in class and status. Murphy figures these differences out in the last chapter, as though he is the detective, thinking out loud as he pieces together the evidence. Finally, at the end he
makes connections between the complex social and economic circumstances of Chicago in 1871, and the contemporary circumstances of modern urban areas. He does what historians do. He looks at large, powerful ideas in a new light. He does what teachers would like their students to do, compare and contrast the issues and conditions of another place and time with the students' understanding of the world and their experience.

Being an expert reader of history means having a skeptical stance toward historical texts, interrogating the authors, and refusing to accept a text at face value. Where authors are present, readers are more likely to question and discuss what the author says and make a context for the author's writing (Beck, McKeown & Worthy, 1995; Paxton, 1997). Teachers need to ask questions with students. Why would the author include this information, or that source? Does the author make clear the purpose for writing or the audience for whom the writing is intended? Readers engage the text when they sense the presence of the author and question both the book and the author. The books in the sample provide readers ample opportunity to question the author and to reason through the skepticism they have, or figure out what the author is not considering.

The occurrence of hedging metadiscourse is more frequent and more varied in the first and the third passages than in the middle passage. Authors start with questions and end with more questions or uncertainties. Teachers need to examine books with children, in terms of the influence of authorial voice and in terms of the extent of its presence. That authorial voice is consistent across passages and that authors recapitulate their positions and questions means that the book is a source of conversation between author and reader. It is not like a dictionary, in which students look up a word and put the book down. Readers of nonfiction will frequently use their books to retrieve specific information, the
name of an inventor, the story of a battle. The books in the study show that the context of information and hearing the author behind the information is just as important as the information and the narrative, so important, that they cannot be separated.

As hedging tends to occur more frequently at the beginning than in other passages, generalizations tend to occur frequently at the end than in the beginning. Authors build their generalizations through the text. Larger generalizations occur more frequently at the end, and smaller generalizations occur throughout the book. The numbers of facts authors use to illustrate their generalizations stays relatively consistent through all three passages. This means that authors build their cases and create networks of information, that makes a foundation for their thinking in terms of larger, more powerful and provocative generalizations. If there are fewer generalizations at the beginning authors have relatively more facts that support and illustrate them than they have at the end. In sum, the study has provided teachers with additional, deeper ways of reading historical nonfiction and teaching the processes of historical thinking. They have resources to show children how authors write. Younger children can experience the author’s certainty or doubt in the books, while older children can see how authors vary their presence through the book. The books provide resources for teachers at different grade and interest levels. Proportionate to the number of total words, shorter picture books, appropriate for younger children, are rich in the characteristics of coherence germane to historical understanding, such as evidence of authorial doubt. These books are appropriate for older children who explore the use of primary sources to support generalizations. The longer books, appropriate for older children, show how authors discuss conflicting sources.
The study is not intended to replace excellent teaching. It is meant to provide teachers with resources they can use in their reading and writing programs to teach the procedures of historical thinking and writing. In the introduction to this study, a quotation of teachers demonstrates their concern that students, apprentices of historical thinking, be supported as they become more expert readers. The study has shown how high quality nonfiction literature can assist historical thinking and understanding. The books have characteristics which are considered important in the cognitive processes of reading as well as in thinking as historians. They demonstrate the variety of ways in which authors manifest these characteristics. For instance, in her book, *The Many Lives of Benjamin Franklin*, Osborne (1990) ponders causality and in her explanations of actions and motivations, she develops a context in which people's actions take place.

The relationships among the groups of composites are not uniform. This too is expected. Different authors are strong in certain characteristics, which the evidence of outliers in the correlations amply demonstrates. In no way was being an outlier a negative quality; it was simply the effect of being outstanding in certain characteristics. The abundant primary sources in *The Fiery Vision: The Life and Death of John Brown* (Cox, 1997) allows Brown, his companions, and his family, to speak for themselves. Cox takes a perspective and he lets the reader know what it is at the beginning. He questions the terms fanatic and murderer attributed to John Brown. Then Cox gets out of the way, so to speak, and lets Brown and the people in his life step forward and recount the events. Author's purpose and style determines what characteristics of textual or disciplinary coherence are most salient in the text, but economy of space also forces authors to weigh what they will include and what they will not include.
The findings are not trivial in that this systematic study of nonfiction historical literature shows characteristics that teachers can use in helping students learn to think as historians. The books provide resources to extend the research literature on coherence and children's historical understanding into the world of children's nonfiction literature.

**Implications**

The findings in this study have implications for students, teachers, librarians, publishers, and authors of children's nonfiction literature. Teachers review books on the basis of the accuracy and currency of content but critiquing books in terms of author presence, doubt or certainty, or the clarity of the author's perspective, are elements that can be brought into the conversation about books. The results of the study shed light on a larger range of characteristics to examine in nonfiction literature. This means that strategies of comprehension include search for author perspective and overarching generalizations with supporting information. A disciplinary focus doesn't mean teachers ignore content, but it encourages teachers to look at and emphasize how authors present and interpret historical information.

Crismore (1984a, 1984b) wrote that sixth grade social studies textbooks lacked explicit global thematic ideas. The books in the sample do have global, overarching, and guiding ideas. One implication of the finding is that, in helping students develop an understanding of how authors present, explain, and support ideas, teachers have a rich resource in dealing with biographical and other historical topics. Trade books are thought to be a source of enjoyment or as supplemental reading for students who want to delve more deeply into particular topics. But this study shows that trade books are rich resources for content area learning, where it concerns the procedures and conventions of
history as a discipline as much as the enlargement of a body of facts. This does not mean that trade books should replace textbooks, but this study suggests a different function for textbooks. Instead of being the core of content area learning they act as a source of information, a survey of a selection of events, just as a dictionary or encyclopedia are sources.

**Implications for students.** In Paxton’s (1997) study of revising textbooks he introduced authorial voice. The books in this study provide teachers with resources that have authorial voice present. Paxton’s work concentrated on high school students. The results of this study invite exploration of authorial voice with students who are much younger. Authors of the books in the study writing about how people are influenced, and why they do what they do, is important not only because children can see that authors participate in their writing by commenting on the people and events about which they write, but that they do what historians do. They construct contexts of human experience in which events take place.

Since the short books have a greater proportion of coherence than the longer books, young students have the advantage of books that can give them a head start in their disciplinary knowledge. But older students have an advantage too. They can learn how historians think and work as they read shorter books. When students learn how historians work and think, resources that are short and condensed provides lessons in reading historical nonfiction and models of disciplinary coherence.

Hearing where the author is present shows students what authors do in writing. The enthusiasm of the author, the author’s doubt and certainty become an integrated part of the information. In hearing authorial voice, children can come back to their early
experiences in their writing careers, that they write about what concerns them, what hurts or bothers them, what they are working to understand, and what their interests are. They see that writing history is not just getting the facts right. Somewhere along the line as children write reports for school, such a connection between personal knowledge and involvement is supplanted by the requirement to provide information. This is speculation and is not meant to be a generalization about teachers and students, but the understanding of how authors take opportunities in their writing, both explicit and implicit, to make their thinking and perspective known means that students have models for their writing. Authors think aloud in their writing as Fritz does (1989) in her biography, *The Great Little Madison*. She constantly reasons through people's actions, making suppositions, or establishing beyond a doubt what is known. She makes asides about individuals that are sometimes bold and forthright, as she does in her comments about the large-voiced, long-winded, Patrick Henry, and that are sometimes gentle and tender, as she does in her references to the life-long friendship between James Madison and Thomas Jefferson.

The use of primary sources provides children models for how authors integrate what other people say. In her book, *Joan of Arc*, Stanley (1998) includes quotations in phrases or short sentences. Myers (1991) also includes relatively short excerpts in his book *Now Is Your Time: The African-American Struggle for Freedom*, whereas Bial (1995) includes long passages from the writing of those who were involved in the underground railroad. An exploration of how students perceive the differences, what the effect is on their reading, what the effect is on students' sense of authenticity and credibility means that primary sources become material to craft, rather than a simple dichotomy of having them or not having them. Students can judge how they would use
primary sources in their own writing, assess the effect that using primary sources has on the presence of their voice in their text, or consider the audience for whom they write.

Students have the opportunity to look at each other's writing from different standpoints, what is interesting, what is strong, but also how the writer talks about research processes, perspective on the topic, and doubts (or certainties) about the information. Observing the evolution of author presence in students does not mean concern about other aspects of writing are neglected, but teachers have another lens with which to look at how students write. Students have another lens in looking at their own, and each other's writing. This is speculation, for the transfer from reading and talking about books to writing is one that deserves exploration.

Where the authors make explicit connections in the information, readers are more likely to make connections between what they read and their experience. For instance, in his book, Be Seated: A Book About Chairs, Giblin (1993) describes the function of different kinds of chairs and stools in homes and in public places. As they read the book, or peruse the illustrations and read the captions, readers can make associations between the discussion in the book and their knowledge of chairs and their experience of chairs in different situations. Readers can look more generally at how their chairs and other furnishings might describe their interests, values, and life styles. When students read through a biography, and talk about impresses them, what seems to stand out and why, what connections students make to other books, individuals, or personal experience, they may see how themes of people's lives thread through the information.

Implications for teachers. The study has implications for how teachers help students read nonfiction. That children are encouraged to browse in a nonfiction book
may mean they lose threads of information, that weave through the book and support a
generalizations about the topic of chairs on the last page, but the facts that support the
generalization weave through the chapters. The books in the study provide
generalizations and themes that can be applied to other events and people. For instance,
what other things define who we are? Teachers can help children recognize powerful
ideas and supporting information, but these ideas become material in their research.

Although the composites represent variables consistently and reliably measured in
three passages, the measurements are not equal. That is, variables tend to show up more
in one passage than another, rather than evenly. The variability of occurrence has
implications for reading nonfiction literature. Students use nonfiction literature to find
particular information, or read one chapter that is particularly germane to their research.
Whereas students read narrative from start to finish, they do not necessarily read
nonfiction the same way. The study suggests that different approaches to reading a
nonfiction book, possibly more akin to reading narrative, would help students see the
varying occurrence of qualities that make the book coherent. The author has different
ways in which to present a perspective, some explicit, as in the author’s notes or the
introduction, and other ways that are implicit, the preponderance of information about
one person related to their topic. Appearance of generalizations is not equal through a
book; they appear at different points in the book. Their support occurs across pages.
Reading short excerpts, or browsing through a book means that students could miss the
patterns of information across passages. Part of the implications of interconnecting ideas
is that teachers explicitly point these out to students and teach students to recognize and
track them, include them in their summaries, even talk about images and connections that come to mind in reading generalizations.

Understanding the explanations and descriptions of content and thinking about overarching generalizations, for instance, are parts of an ongoing process of reading and rereading. The nonfiction literature in this sample suggests that teachers revisit their books with children again and again and find something new that they can bring to the attention of their students and that they can use in their reading programs. They can return to the books for material to bring to the reading and writing workshop mini-lessons, such as how an author presents and repeats a theme, how an author supports a generalization, how an author expresses doubt, and how an author uses captions to provide information that is not in the running text but adds critical information to it.

The study has shown that primary sources serve a range of purposes. They elaborate on illustrations, they support generalizations, they provide additional perspectives, and they argue a point, and, on occasion, a primary source provides background information. The power of primary sources has implications in classroom discussions. Primary sources themselves require the use of disciplinary conventions. Readers check the source first, think through the context of the source, consider reasons why the author included long excerpts of primary sources as Bial (1995) does in his book The Underground Railroad and compare the influence of short or long quotations on reading. Teachers and students sift through content with a different focus than learning the facts about the underground railroad. Students have the opportunity to read back and then forward through the text, seeing where one source continues or another one starts.
With this kind of analytical study teachers have more choice in the assessment of books. Depending on the development and achievement of individual students, teachers have a wider range of what to look for in books. For instance, the teacher sees that one child who uses the features of a nonfiction book, such as the index, the source list, and chapter headings may also discover that finding the author's generalizations about a topic. The different focus provides a slightly different perspective on purposes for reading. The ways in which students are present in their writing, making their perspective known, pondering the character of their sources, means that teachers can track interpretive qualities in children's writing, as they look at its structure, evidence of detail, and technical aspects such as spelling and grammar.

A disciplinary focus on learning history at a young age, and learning it with children's literature has challenges that go beyond the classroom. How do teachers understand historical discourse or thinking? How do teachers use their nonfiction literature? These questions have implications for teachers' experience and learning, as students and as professionals. As Wilson and Wineburg (1988) and Downey and Levstik (1991) have noted, teachers' background, education, their knowledge of content knowledge, and their disciplinary perspective influence how they teach history. As social studies teachers, they are influenced by the controversies that have surrounded social studies instruction over the last couple of decades (Nash, Crabtree, & Dunn, 1995). A disciplinary and procedural perspective in learning history means ongoing discussion among teachers and other involved educators, in weighing the multiple influences on what is taught. It also means ongoing conversation on the purposes of learning history and most importantly, how students understand the study of history.
Wineburg (2000) has noted that the study of history can help us understand differences across the centuries or across the tracks. In reading about other times and places we come to recognize what we know and what we don’t know. For example, an historian has a hard time puzzling over why Lincoln wrote the Gettysburg Address the way he did, why he would include certain words, why he would be talking about the consecration of the ground. The historian’s puzzling is similar to Fritz (1989) in her biography of James Madison as she ponders decisions he made as a young man. The connections between the way historians think and the way authors think about their subject have to be made explicit with children. The study of the past influences how we think of events and individuals in the present. For instance, corroborating sources, assessing perspective, constructing a context for documents are skills useful in sifting through information presented in the mass media.

The results of past studies and the findings of this study suggests the question, what do teachers look for when they talk to children about what they understand about history and the work of historians? For instance, if teachers were to look for authorial voice in students’ presentations and written work where children express doubt, certainty, or where they explain their own view of the topic, assessment of children’s understanding would have a focus that was disciplinary. That is, children’s understanding has an interpretive quality. Older children have learned school report writing, organizing essays, giving the objective truth, and presenting information, rather than an interpretation of their information. Instead of being an extension of talking or thinking, for older children, writing becomes a vehicle for presenting information.
Implications beyond the classroom. The integration of literature into the history classroom is a challenge. Duke (1999) noted that the presence of informational literature was a function of the wealth of the schools. In her study, poor schools had fewer books. The availability of a range of sources that promote children's experience in reading, and offer diverse explanations and descriptions is as much a consideration in using historical accounts as it is for other kinds of informational texts. The challenges of differential wealth have implications for teachers. The findings of this study suggest that teachers have at least a few resources that are particularly rich in content and disciplinary focus. The study suggests that fewer books that offer richness of disciplinary perspective and domain knowledge may be more useful in helping children learn how to do history than an abundance of books that do not. Wineburg (1994) noted that students may not benefit from more information if they do not know how to use the tools of historical thinking.

Paxton (1999) and Crismore (1984a) have noted the survey quality of students' learning history in their school careers. This study suggests the question about the extent to which teaching history is a survey or teaching history is an interpretation of selected evidence from which accounts are constructed. The advocacy of nonfiction literature suggests a focused, in-depth approach, rather than one involving a sweeping survey. The nonfiction literature of this study are examples of more depth than breadth. Authors look at specific topics in a short period, as Fraser (1995) does in her book, In Search of the Grand Canyon: Down the Colorado with John Wesley Powell, or Murphy (1995) does in his book, The Great Fire. Fraser focuses on one man and his companions, in one place, during a short period around 1870. The sharp focus of an in-depth look at individuals, their work, their relationships, their obstacles, their visions, has implications for teaching.
Teachers can provide the larger context in which the specific historical events occur. Children can explore what they know of the period and share the knowledge they have gained in studying their topic. In a sense, they become experts of different aspects of human experience in one period or across time. State testing, emphasizing specific content, and standards-based learning, incorporating disciplinary knowledge, suggest a judicious combination of both how historians think and work and of what historians find out in their research as well as survey of historical content. A disciplinary focus can be brought to in-depth teaching of particular topics without relinquishing teaching topics of sweeping scope.

The books in this study provide resources that demonstrate the disciplinary focus in selecting and interpreting information. The research literature has suggested that students do not use the evidence at hand to construct their accounts. Wineburg (1991) has suggested students use schema from other sources in their explanation of events rather than a critical examination of the evidence. When students experience authors who discuss evidence to support their ideas about their subject as Fraser (1996) does in her book, In Search of the Grand Canyon: Down the Colorado with John Wesley Powell, children have a rich context of a few people, in one place, engaged in a singular enterprise. What is the influence of such a book on students’ accounts of a period, or of a person? When students read a variety of nonfiction literature, what is the influence on students’ perceptions about the content they are learning as well as about themselves as historical thinkers? That is, how do student’s perceptions of learning historical content change as they read in-depth accounts by authors, who talk about the information, and their position, as though having a conversation with the student? These are questions that
have emerged from the study and that are the subject of long term work with teachers, students, and the books they read. The research into younger children’s historical thinking and understanding suggests promise for looking more closely at how children might develop as historical thinking including them in long term study with an interview format, in which children present what they know rather than respond to questions.

Implications for librarians. A disciplinary focus in examining books means that librarians have additional criteria in their selection of books for their collections and for helping students with their research. They can work with students to explore how authors use primary sources or how they deal with conflicting sources. Helping a child find books in which the author explains her perspective on the Civil War, for instance, is a different task than looking for a book on the Civil War. Even if the genre is specified, such as a search for a biography of a person who lived during the Civil War, a disciplinary focus extends the criteria of selection.

Implications for publishers. The relationships among characteristics of coherence, demonstrated in the books were statistically significant. Certain other characteristics, defined as disciplinary, are the growing frontier in publishing, such as an author’s discussion of conflicting sources and alternative interpretations, the integration of primary sources, and author perspective. Providing books that demonstrate how historians think and what historians do would give them an advantage in a marketplace burgeoning with children’s books. Characteristics that were strong in the sample are also those characteristics that engage readers. Engagement means that pieces of information are connected together to explain and support large ideas. Seeing history as gripping problem solving, as an argument, or seeing it as one interpretation of information is
different from seeing it as a series of names and dates. When teachers and schools incorporate a disciplinary focus to the study of history publishers have markets for authors who have such a focus in their writing.

Implications for authors of nonfiction children's literature. The authors of the books in the sample provide abundant examples of how writers craft coherent accounts. They do not purport to present the objective truth or the single best story. The accounts are unabashedly a result of authorial perspective, puzzling with the evidence, explaining information as though figuring out how it does, or doesn't, supporting the powerful ideas in generalizations, and feeling out the themes as Osofsky (1995) does in her biography, *Free To Dream: The Making of a Poet, Langston Hughes*. She comes back to a theme of his life, “the left lonesome feeling.” The authors make their pondering over conflicting sources and alternative interpretations visible, as though they are thinking out loud. Instead of being the well-practiced presentation, the writing is more a demonstration of sifting, discussing, arguing, and reformulating information. It is a work in progress.

Future Directions

The investigation of the study is exploratory. It has explored characteristics of coherence that both the research literature on reading comprehension and reading historical nonfiction indicates are critical in helping students understand the nonfiction. Through the course of the investigation variables have been removed from the analysis, either for want of a clear definition that accommodates contingencies, such as the analysis of illustrations, or because they were not reliably and consistently measured across the books. These variables that were not included in the study such as illustrations,
generalizations that span the book, or the treatment of vocabulary are the subject of their own future studies.

Were teachers to include a disciplinary focus in talking and reading about history, and this were continued over time, through the grades, how would children’s writing and oral presentations sound? Beck and McKeown (1994) found that their work with the children continued to influence their thinking three years later, but information gathered in that time did not result in more elaborated accounts and understanding. They could sustain what they had learned but were not able to change or augment their understanding. In other words, the work that Beck and McKeown had done with the textbooks and children was not part of a comprehensive program in learning to think as historians. Future research needs to take up where Beck and McKeown leave off in looking at the influences of reading and talking about nonfiction literature over time.

The process of reading, talking, and writing historical accounts, and how the process and content changes over time is an area for future observation and research in the classroom. What “content” means to teachers and students over time is an area of inquiry. For instance, at one point, content is seen as a list of information. At another, content is how the bits information are related and connected to an overarching idea about them. Primary sources and the discussion of conflicting sources is another aspect of content.

Questions of how history is taught, and what its content is to be, is a subject of future discussions between those who advocate history as a survey and history as an in-depth look at evidence related to particular individuals and events. If students are to learn about the United States after the Civil War, for instance, and more specifically touch
upon major turning points over a fifty year period, how does the study of one man in one place, serve that curricular interest?

The methodology used in this study can be used to analyze other books, specialized books, or particular kinds of books such as only picture books, or only longer books. Disciplinary coherence in historical writing has counterparts in other disciplines, such as science, where researchers have carried out content analysis on how text books discuss scientific investigation and the nature of science. The methodology of the current study may be applicable to the study of children’s science nonfiction literature. However, a more immediate need is the further research into historical nonfiction and biography. The current study looked at only a select few books form a list of books notable for their high quality in terms of accuracy, organization, style, and design.

The sample of books in this study provides a baseline for further research related to books and content analysis. How do other books demonstrate disciplinary coherence? Is there any change in the publication of books over time? That is, to what extent is there indication of changes in selected characteristics of coherence and disciplinary coherence over a longer period than the last decade? In such a trend study, the selection of books would include more than the books on the Orbis Pictus list.

Since the study involved only the books, future research needs to focus on how teachers and students use their books. Future research also needs to involve the exploration of student and teacher perspectives on characteristics of books that promote comprehension. It would explore their understanding of how books can help readers see how historians work and think. Related to these lines of research is the investigation of changes in children’s reading over time as they are assisted in reading with a disciplinary
focus. A preliminary stage is exploring children’s sense of causal explanations, their
development of supporting arguments (or generalizations), and their use of primary
sources. A focus of study is the bridge between what students understand in their lives
and their discussion of the features of nonfiction books. For instance, students are
acquainted with primary sources in their talk of what is said on the playground, what their
parents talk about at meal time, or what their grandmothers say about baking bread. But
what are the steps that transfer that experience to reading and writing historical text?

Knight (1989) noted that when children are encouraged to think and talk about
why people lived and acted as they did in situations unfamiliar to them, they were better
able to explain a sequence of events than the children who were not encouraged to reason
through why people behaved as they did. In her book, The Many Lives of Benjamin
Franklin, Osborne (1990) provides a context of why and how Franklin founded, for
instance, the first fire department and first public lending library in America. For many
people these institutions are taken for granted as a fact of life in every town. Were
children encouraged to talk about what must have been going at a time and in a place for
a person to want to do something for the community, for instance, teachers can assess the
character of the context readers construct. Do they use material from the book, do they
use material from their own experience, do they combine the information? What
connections do they make between what is familiar to them and what is not, and how do
these connections change over time? How do these connections influence the ways in
which children think and talk about their own lives? How do these connections influence
the ways children view themselves as historical thinkers?
The understanding of the interpretive nature of history and that historians talk about alternative interpretations of information may provide different challenges to the historical thinking and learning of younger students, than those presented an authorial voice. How would children develop a sense of other ways of looking at things, and how would they express their understanding. The study has shown that authorial voice, especially hedging, is related to alternative interpretations. Would similar relationships be present in children’s talk and in their writing?

In terms of metadiscourse the results of the study have implications for future research and work with children. In Paxton’s (1997) study of revising textbooks, he endeavored to introduce authorial voice. The books in this study provide teachers with resources that already have authorial voice present. Teachers can explore how authorial voice influences students at different ages. What is the influence on young children learning to think as historians when they read books, or have books read to them, in which the author’s voice is present? How do they talk about what they read? Do they express doubt or question? Were children to talk about alternative interpretations for information, how and when would they express the possibility that there are multiple ways of looking at events? Paxton’s work concentrated on older students. The results of this study invite exploration of authorial voice with students who are much younger. Also, picture books might be used with older students to explore the influences of author presence, or other characteristics of disciplinary coherence. How would reading such books transfer to writing and talking about historical material?

Rich description and explanation enable children to make sense of the sequence of historical events (Barton & Levstik, 1996, Knight, 1989). But do children learn to explain
and describe situations because they have read authors who provide a rich context of explanation that becomes part of children’s mental image of other times and places? That is, perhaps the connections and explanations of the author help apprentices of historical thinking develop a situation model of historical events and actions. One line of future inquiry is the examination of these questions with children. The exploration needs to be long term and carried out in terms of how children’s thinking and understanding changes over time. Including children across a range of ages from six years old, or younger, to children who are older, even students at the high school level would give a broader picture of the relative changes among children. How children read historical nonfiction and how they perceive themselves as readers is a related question. They become emotionally engaged through the illustrations. How does this preliminary engagement influence further reading? Identifying efficient readers of nonfiction and exploring how they go about reading the text and the illustrations is a future line of research. For instance, in Clara Schumann: Piano Virtuoso (Reich, 1999), the illustrations of members of the family, colleagues, and friends, thread through the book in chronological order. Whether an illustration elaborates on information on one page or if it augments information through many pages is part of finding out how children read nonfiction.

Much of the research in children’s learning has been conducted with older middle and secondary students, although Barton and Levstik (1996) and Knight (1989) report their findings of the understanding of six-year old children. In the work of Beck and McKeown (1994), with children over a period of several years starting in the fifth grade, and Knight (1989) and Barton and Levstik (1996), with children having a range of ages, children show themselves to be apprentice historians, making sense of events and actions
that they learn about second-hand and that are unfamiliar to them. The work shows that young children think historically in simpler categories than children who are ten, or older. They talk about what they learn in terms appropriate for their ages. The influence of authorial voice, children's sense of importance and causality, their visualizing other times and other places, are three avenues of investigation with children as they read and talk about the nonfiction literature.

The influence of explicitly and purposefully encouraging children to reason through actions and to discuss what they think about what they learn, or hear, might influence what teachers and researchers understand about children's thinking. That is, the influences on children's learning and understanding about history as teachers engage in a disciplinary approach through reading literature is a frontier for exploration. When teachers explore with children how authors present themselves and their information, or when teachers sift through texts for big ideas and the detail and information connected to them and encourage children to talk about why people would speak or write as they do, they explore learning from historical nonfiction literature in a disciplinary context. They focus on children as apprentice historians as children develop knowledge of historical events.
REFERENCES


References from Children's Nonfiction Literature


Appendix A

THE ORBIS PICTUS LIST
OF BIOGRAPHY AND HISTORICAL NONFICTION LITERATURE
1989-2000

*Titles noted with an asterisk were included in the content analysis of the study.


Appendix B

ESSAY ON METHODOLOGY

The discussions in this essay begin with questions. Authors of children's nonfiction will pose questions as they delve deeply into the motivations and actions of people they write about or into the reliability of sources. Authors pose questions as they change topics or structure information. In this essay the questions serve all three functions in four sections, beginnings, coherence, historical understanding, and content analysis. Although the discussion is linear, as though the decisions followed an orderly sequence, the research into the different topics happened simultaneously, with periodic back stepping and side stepping.

And it begins with the general question, How did I make decisions in developing the methodology for the dissertation? It became a study of coherence but it started as a question about "considerate text." During earlier research into the task specific demands of reading expository text, I studied an article that simulated a child's reading of a geography textbook (Kantor, Anderson, & Armbruster, 1985). She puzzled about the connections among the bits of information and wondered whether she should have recognized the meaning of certain terms and the reasons why certain people's names were mentioned. Hers was not a considerate passage. I could see what inconsiderate might be but I needed more information on what considerate meant. I also needed literature about how textbook and trade book writing differed. I found literature on research with textbooks because researchers argued they were prevalent in schools, yet my interest was the nonfiction trade book.
In reading the literature on comprehension of expository writing I questioned the distinctions authors made between science and history, that science was based on principles and systematic testing and observations. It was deductive, while historical investigation was based on interpretation of available evidence. I thought the distinctions were not so clear cut, and that perhaps science might be more interpretive, while history might contain implicit patterns. I had not decided on a disciplinary direction until I read an article on the writing of history textbooks (Paxton, 1999). Paxton’s work introduced me first, to literature on considerate text and author presence, but more importantly into the research on coherence. Second, Paxton suggested a line of literature that explores history as a way of thinking in its selection and interpretation of information. He argued that it wasn’t the portrayal in textbooks of a “lucid combination of fact and truth, unblemished by the interpretations and beliefs of those who write it” (p. 315). In reading nonfiction trade books, I found authors acknowledged their perspectives, their passions, their interests, and, in fact, authors, such as Milton Meltzer discuss the value of their being not an objective observer but a writer with purpose and interest. Third, I investigated the research on children’s learning of historical content (Levstik & Barton, 1996) and I was introduced to the socio-cultural influences of reading historical literature (Epstein, 1997; Seixas, 1997; Wineburg, 1999).

Wineburg (1991) presented a survey of the research on the cognitive development of students’ thinking in other disciplines and he noted that “amid this efflorescence of research, the subject matter of history has been ignored” (p. 73). An examination of historical nonfiction appeared to be a beginning in later exploring students' understanding of history. I was influenced by the numerous stories from children and
teachers about learning history that they either enjoyed history, because of the stories they read or heard, or hated history because all they did was learn dates and names. I had worked with teachers who expressed concern about the qualities of books that help readers become engaged in reading. Teachers looked for considerate texts, those that are composed to facilitate understanding, learning and remembering (Armbruster, 1984, Paxton, 1997). Teachers' concerns are as much about how authors and books help children comprehend what they read as they are about the purpose, reading experience, and world knowledge, children bring to reading. The idea that students are apprentices in discourse learning was one corroborated by the literature (cf. Levstik, 1998; Rogoff, 1990; Wineburg, 1994).

**Literary Coherence**

What were decisions related to coherence? Authors interchange the terms considerate and coherence (cf., Anderson & Armbruster, 1985). In her study Nolen (1997) looked how author presence in two statistics books affects students' reading. She writes that the books she chose were "in general considerate: coherent, cohesive and written at an appropriate level of difficulty" (p. 48). Although Beck, McKeown, Sinatra, and Loxterman (1991) regard the terms as synonymous, they and other researchers discuss coherence in terms of the cognitive processes of reading (cf., Graesser, Singer, & Trabasso, 1994; Kintsch, Kozminsky, Streby, McKoon, & Keenan, 1975; Kintsch & Van Dijk 1978). Certain books help the process by making connections or by providing details that help readers make connections to what they know about reading and about the content. Coherence appeared to be the fundamental quality of a text more important to comprehension than the presence of authorial voice, interesting details, descriptive titles,
subheadings, changes in fonts, and the highlighting of central concepts (cf. Graves, Slater, & Roen, 1988). Rabinowitz (1987) noted that coherence may be the most basic element in literary criticism and in reading, in terms of what authors do in writing, and what readers do in reading to find patterns and overarching unity in meaning.

Beck (1989) and her colleagues looked at the extent to which textbooks provided adequate background information to create a context for explanations of geography and history and based their revisions on the extent to which information was connected through causal explanations. Their argument that causal explanations were key in reading comprehension of expository writing was based on earlier research on how readers recalled narrative (cf., Stein & Glenn, 1979; Trabasso, Secco, & Van Den Broek, 1984; Trabasso & Sperry, 1985). I decided that the extent to which authors provide causal explanations of actions and events would be part of my investigation of nonfiction literature. Second, from earlier research I understood how critical understanding vocabulary in the context of reading particular text is to comprehension. Vocabulary that authors define contextually or in a glossary was to be another category in the study.

Third, I decided to include a category related to generalization that provided a nucleus connecting new information and background knowledge readers can draw upon as Beck, Sinatra, and Loxterman (1991) and McNamara, Kintsch, Songer, and Kintsch (1996) have pointed out. Paxton (1999) noted that authors in text books don’t explain significance or meaning of information. In his content analysis of text books Brophy (1990) and his colleagues examined the extent to which the texts included content that invited higher level thinking, or making generalizations from a body of information. In looking for generalizing statements about information in the books I intended to
distinguish those generalizations related to historical thinking. I had found authors of children’s books, such as Cox (1998), Murphy (1995), Myers (1991), and Stanley (2000), put their accounts of people and events in an historical context. They make generalizations about historical thinking.

If coherence is the connections among ideas, and if authors write from an interpretive perspective, different books might demonstrate generalizations that weave through the entire book. Written history is a linear account of events that do not necessarily happen in a linear fashion, but are selected from all the available evidence and crafted into an account. I decided to include a category that would analyze generalizations across the book. Authors weave enduring ideas through their books, as Jean Fritz (1989) does in The Great Little Madison. The first sentence, “James Madison was a small, pale, sickly boy with a weak voice,” echoes through the book in her contrasting again and again, his little voice with how powerful his writing and thinking were. I decided I would have to examine theme in generalization, because authors of trade books do not necessarily adhere to the generalizations that govern developers of social studies text books.

The importance of background knowledge in making connections, in supporting generalizations, or in defining vocabulary caused me to decide to make it a category in the study. Before the design for the research had been developed and the reliability study completed, I deleted this category because of the high level of subjectivity in determining what would be classified as strictly background information in a book.

Historical Accounts and Disciplinary Coherence
What had seemed intuitive in terms of categories for the study became clearer as I researched the literature on teaching and learning of history. It showed that historical writing is more interpretive than the tradition of the “single best story” that school history textbooks tend to perpetuate (Loewen, 1995; Seixas, 2001). History writing is not the objective, systematic documentation of events written by acknowledged authorities (Novick, 1988). History textbooks can perpetuate half truths and untruths as Kohl (1995) pointed out in his survey of eighteen text books recounting the story of Rosa Parks. Kohl notes that, by insisting her keeping her seat on the bus was an isolated event of a tired woman, textbook developers ignore the truth that she was a leader of the community and a member of the NAACP. She and the Women’s Political Council had been preparing to confront the city’s racist policies since 1947. Kohl’s survey suggests that the development of historical texts is as much a cultural act as it is a political one. Although my study did not focus on social cultural factors, the awareness of them contributed to the argument that books are situated in a cultural time and place, where authors have a purpose for writing for an intended audience, who, in turn, have particular purposes for reading. I decided to include a category for socio-cultural identification. Such information might contextualize information for young readers, helping them see that an historical account is as much about people and events different from them, as it is about events with which they have connections.

Historical writing can take a number of forms, for instance, narrative story (Cronon, 1992), description and explanation (Megill, 1989), causal explanation and argument (Britt, Rouet, Georgi, & Perfetti, 1994). Distinguishing historical writing and thinking from story telling, even though history is a story, presents a particular challenge
to children learning historical content and the distinctive characteristics and expectations of historical writing. I decided to include categories that would distinguish narrative from explanatory or descriptive material in relation to the author's generalizations.

From reading the research literature on children's historical thinking I found what authors (cf. Britt et al. 1994; Wineburg & Fournier, 1994) call three heuristics of historical understanding: Readers and writers of historical accounts corroborate documents, they contextualize the evidence, and they assess the source of the document before they read it (Paxtorr, 1997). I decided to make these elements categories in the analysis. The presence of the author, explicitly stating a perspective or implicitly suggesting one through the use of vivid language remained a significant factor for the study. I decided to include the explicit statements because of the subjectivity in judging vivid language. I decided to examine the extent to which authors assess the reliability of a source of information, account for conflicting sources, and generate or account for alternative interpretations of the evidence as part of one of the research instruments.

Historical writing is interpretive, authors have a feeling for what, or who, they are writing about. Authors support their information with primary sources. As I read the children's historical nonfiction I found certain authors included a large proportion of primary sources, almost as if the author wanted the subject, or subjects, of the book to do the talking as Cox (1998) has done in Fiery Vision: The Life and Death of John Brown, or as Murphy (1995) has done with the four voices in The Great Fire. Murphy presents opposing views about the events of the great fire and teases them apart to discover social and cultural tensions among the people that underlie their observations and commentary.
The primary sources conflicted. I decided to include categories that would address the author's use of primary sources.

In their study on author's presence Beck, McKeown, and Worthy (1995) suggested the author's voice helps students and readers “understand what they read” (p. 221). Content, reading experience, and the restrictive implications of asking children questions about what they read, may present challenges for accurately assessing children's understanding of historical content (Levstik and Barton, 1996). But results of Beck et al. (1995) indicated that “voiced text” facilitated recall, even with open ended questions. However, a coherent text produced greater results than a voiced text, and a voiced coherent text was marginally higher than a coherent text. Such findings were replicated in other studies (cf., Graves, Slater, & Roen, 1989). Voice is not an unmitigated advantage. It can divert readers from important information. Students remember “the terrific specific” instead (Zarnowski, personal communication, December 4, 2000) which is what Hidi and Baird (1988) found in their study with elementary children, using biographical text they wrote. My study was different in that I decided to analyze published trade books. I decided that the author's voice would become one of the categories in the study of Orbis Pictus books. Criteria for analyzing voice emerged from Crismore's (1983, 1984a) study of metadiscourse analyzing articles, adult trade books, and both high profile and less common school history books. Although her work has been referred to in the research literature on author presence in text (cf. Beck, McKeown, & Worthy, 1995; Nolen, 1997, Norris and Phillips, 1994; Paxton, 1999) it has not figured in statistical content analyses. Crismore's work was at the intersection between the literature on coherence and the literature on historical knowing (Paxton, 1997). The discussion of
the decisions in designing the content analysis is taken up below and Crismore's work will figure in it.

**Content Analysis**

Determining the size of the sample became a matter of statistical power, which is the probability of rejecting a hypothesis when it is false. For instance, one hypothesis is that metadiscourse, as a factor of coherence, is not related to the length of the book. Sometimes this will be true, and sometimes it will be false; the percentage of times the hypothesis is false represents the statistical power. In their explanation of content analyses, Gall, Borg, and Gall (1996) note that a sample needs to be specified in terms of what it is to represent. If the intention is to represent the population generally, it is different from a sample that does not. Determining the sample size was a matter of statistical power.

Research literature demonstrated the idea that content analysis is based on observation, whether the text is spoken or written (Krippendorf, 1980). Brophy (1990) analyzed five elementary textbooks for understanding of concepts and higher order applications. To do this, he developed questions with his colleagues based on the literature related to social studies standards for teaching and outcomes for learning. He read all the books, making preliminary notes on his observations, and then studied the books in three stages, coding for different content. At each stage Brophy had a different purpose for questioning the book. He then focused on specific books and on particular units in those books because of their significance to researchers and teachers he and colleagues consulted. Since I had a large number of categories I decided to study the books with the specific focus for each category. The process became refined during the
interater reliability study, when the raters found that reading the passages multiple times focusing on content relevant to each instrument. Finally, that raters found that even the analysis of passages on the basis of one instrument required multiple readings in order to gather thorough data. Also I decided to work with colleagues in developing and refining the criteria for the categories. Definitions were more refined during the reliability study.

In researching content analyses, I found that Crismore’s methodology was replicated to the extent that authors evaluated books for particular content-based analysis of discrete passages (cf., Aikman & O’Hear, 1997, McCabe, 1993), rather than thematic content scattered throughout the book (cf., Chiapetta, Fillman, & Sethna, 1993; Hurley, Rawlins, & Chadwick, 1998). In terms of content analyzed, Chiapetta, Sethna, and Fillman (1993) examined “random samples of the whole textbook” (p. 789). They then examined the “entire first section of each textbook regarding its treatment of the themes in science and how it treated the nature of science” (p. 789). Their content amounted to “5% of five middle school life science textbooks and the whole chapters specifically devoted to ‘What is science?’” (Wang, 1998, 9). Their study was an example of selective sampling of a numbers of words in a passage proportional to the total number of words in books of differing lengths.

Like the procedural categories of Chiapetta, Sethna and Fillman (1993), in his examination of books for their “considerateness,” McCabe (1993) decided on a discrete passage size for analysis. He selected passages from five fifth-grade social studies textbooks of at least one hundred words because it was the minimum amount necessary for analysis involving readability formulas since one of his categories of analysis was the what he termed “considerateness” of the text. He had four criteria for determining the
extent to which books were considerate. The first one was that pictures and illustrations “can facilitate communication between a reader and a writer” (p.130). He thought pictures placed near the relevant text, enhanced comprehension more than those that were on a different page. The second one was the presence of subtitles that was genuinely predictive for what was coming in the text. The third one was the use of connectives. For the definition of the term he referred to the revisions of Beck and McKeown (1990) on social studies text books and the simulation of coherent text of Kantor, Anderson, and Armbruster (1983) where the reader attempted to make meaning of a social studies text book by using a think aloud protocol. The fourth criteria concerned readability, which, to McCabe was related to coherence. Developers of books will include short sentences as a means to enhance readability, but the effect of them, is that the connectives and references that aid comprehension are excluded.

The other criteria McCabe used in selecting passages for analysis was that they had to deal with the same topic. He based his decision on findings of Irwin (1986) who noted that topic variation may have influenced the results of her investigation. Although he used passages of at least one hundred words McCabe does not explain the range of specific lengths or the number of passages from a book. The five textbooks he used in his analysis were published in 1991 by large publishers. Although McCabe tried to control for topic, the books in my study dealt with a range of topics.

His study is one in which a discrete passage length is designated. His study is also another one where the researcher is investigating how content is presented, rather than themes and terms of the content itself. I decided to look at the two criteria that differentiate the books: coherence in biography and historical nonfiction, and coherence
across a range of lengths of books. Since the books concerned different subject matter I couldn't control for topics.

In other studies researchers handle passage length as McCabe has done. Yet, as often as studies are similar other studies are different. In a study of the effects of the author's voice on women's reading of two statistics books, one judged to have an invisible author and one judged as having a visible author, Nolen (1997) notes that "participants read a short but cohesive segment of an intact text" before they were "prompted to tell the interviewer what they are thinking and feeling" (p. 49). Paxton (1997) explains he chose two passages, one of 504 words from a book related to world history, whose author was referred to as anonymous, and one passage of 655 words which he wrote. He referred to the second text as having a visible author. In both studies the authors intended to explore the relative effects and influences of the texts on students as they used the books.

These studies in content analysis provided guidance but not answers. The writing of nonfiction trade books is different from the writing to meet the curricular standards required of textbook developers. In nonfiction trade books one author constructs a narrative from a perspective born of purpose, personal experience, and research. Features that help readers find an interpretive perspective may be present at the beginning and end, in tables of contents, introductions, author's notes, and in annotated reference lists. I decided to analyze the beginning and end sections because I wondered to what extent the presence of front and end matter might be related to overall coherence. My research question about whether coherence was related to length of books meant I needed a passage size that represented a proportion of the total words in the book. The passages
were to be designated consistently, in the beginning, middle, and end. After I started analyzing books I decided that the center point of the running text had to be reasonably in the middle of the middle passage. The middle passage would begin as close to a chapter, section heading, or other clear indication of topic change, such as style of writing, as the book would allow.

From reading reviews of the research on content analysis of textbooks in science and social studies (cf. Wade, 1993; Wang, 1998) one quality that stands out is that authors use a range of methodological approaches and do not necessarily explain the details of their selection and analysis. Crismore (1984a) explains she analyzed one thousand word passages of textbooks and trade books to find evidence of the author’s metadiscourse. Was the passage randomly chosen from the book? Was it taken from the beginning, or from the end? With books of differing lengths, what is the justification of using a constant passage length? I needed answers for these questions, or at least insight into how I was to proceed.

In a study of how nineteenth century authors made “main idea statements,” Aikman and O’Hear (1997) write, “We required essays of at least thirty paragraphs to provide a substantial piece of an author’s work” (p. 191). Extensive quotes from other sources in any one essay were not counted because they were not the words of the essay’s author. In analyzing books, Aikman and O’Hear selected “a chapter near the middle” (p. 194). I decided to count the words of the primary sources because they were part of the text and because the study is about the coherence of features, such as how primary sources are integrated into the text as supporting material or as new information. Students would read them in relation to the meaning of the entire text. Students may discuss
distinctions between what the author says and what someone else says, but the relationship between the distinctions they make and the coherence of a book is the seed of another study. Authors include primary sources with reference to their purposes for writing. I decided to include them in the word count.

Although Aikman and O'Hear do not provide reasons for other decisions they write that they based their procedures, especially for their reliability study, on those validated by the research procedures for content analysis in an earlier edition of Gall, Borg, and Gall (1996), one of the resources in the design of the content analysis of Orbis Pictus books. In the stratified sampling in my content analysis I could insure that a range of book lengths and publication dates were represented proportionally (Gall, Borg, & Gall, 1996).

In a systematic investigation of sources given in the literature reviews on content analysis of science and social studies books, I found that authors derive their definitions of procedural categories from research literature or theory. For instance, Chiapetta, Sethna, and Fillman (1991) based their evaluation on evidence of how physics textbooks met recognized standards for teaching and learning scientific investigation. The authors were not looking at how textbooks demonstrated investigation, but what textbooks said about it, in other words, the facts of the procedures. Their content analyses of science books were based on well-established criteria of science education. Books that meet the criteria discuss the nature of science, the procedures of scientific research and investigation, and the social implications of science and technology in society. Chiapetta et al. (1991) counted all the captions in their passages. I decided I would analyze all the
captions and count them when they related to certain categories because I was looking for how information was connected and elaborated.

Chiapetta et al. (199) referred to a study of Garcia (1985) in developing the methodology of their evaluation of books in chemistry, physics, and biology. Garcia (1985) evaluated the portrayal of white ethnic American immigrants in history textbooks and Garcia and Tanner (1986) altered the categories in their analysis of the description of black American immigrants in history text books. I mention the Garcia work because researchers take an interdisciplinary approach to content analyses which confirmed my idea that exploration of the literature on content analyses across disciplines was an analogous approach in designing the analysis of Orbis Pictus books. Although textbook analysts, used procedural criteria, such as, the extent to which science books included principles and practices of scientific investigation, studies are frequently devoted to conceptual or thematic content. But, the work of Brophy (1990) and Crismore (1983, 1984a) provided a foundation for observing how authors (or textbook developers) include material that promotes disciplinary thinking and learning.

Analyses of content in nonfiction are based on thematic or conceptual categories, such as the frequency and continuity of such conceptual terms as "needs," "resources," and "rules," in children’s social studies textbooks. Haas (1991) based an evaluation of the frequency and continuity of concepts in primary social studies books. The definition of the term concept had been developed in the literature on teaching social studies. Her study designed to pick out discrete uses of terms had a different focus from my study designed to investigate connected information as well as its salience. Content analysts focus on concepts or themes in fiction as well, such as the representation of the aged and
grandparents, the proportion of female to male characters, or the degree to which male
characters are found in collaborative situations compared to the character of interactions
among female characters. Powell, Gillespie, Swearingen, and Clements (1999) examined
the collection of Newbery Award winning books for frequencies of male and female
protagonists and looked for particular sentences that depicted the character and behavior
of protagonists. In her study of books written for Thai children, Cheevakumjorn (1993)
analyzed representations of prosocial or aggressive behavior across the books. The
rationale for their decisions regarding the text to analyze was a function of the nature of
their studies. Coherence presented a different problem to analyze in that it had so many
components.

To insure a representative sampling of each book (Gall, Borg, & Gall, 1996), I
decided that the research literature documented a range of methods. In the analyses of
textbooks and nonfiction, systematic sampling of books ranged from a single passage,
with a fixed number of words, to multiple readings of the textbook, with focus on
particular units of content emphasized by school consultants.

The work of Brophy (1990), Chiapetta (1991) and his colleagues, Garcia (1985),
and Haas (1991) informed my work in terms of developing criteria for the content
analysis of Orbis Pictus books and served as a counterpoint to the study on
metadiscourse. Crismore (1983, 1984a) reported she used one thousand word passages
from books of different overall lengths, but I questioned how I could justify the same size
passage in a book of two thousand words that I would use in a book of 45,000 words.
Since coherence was the issue I was aware of the precious economy of words in shorter
books compared to the possibility of more elaborated writing in longer books. I decided
passages would be a proportion of the total number of words and would be intact passages from what would appear to be information rich places (Borg, Gall, & Borg, 1996).

Field testing the category definitions in the reliability study provided the context for refining them, or excluding categories altogether. The raters were well versed in children’s literature and developed an eye for the categories through the process of the study. From long and intensive discussions, I decided to thoroughly document each category for which the raters were not in agreement based on three factors: Rater knowledge of the definition of the category, lack of clarity in the category, and differences that could not be reconciled. In the reliability study instances of each of these factors occurred. Discussion among the raters resolved discrepancies where rater’s understanding was the issue. Refinements to the definitions and then applying them to the analysis reconciled the second kind of problem. Where the raters found differences could not be reconciled because variables were subject to interpretation that could not be accounted for, I decided to delete the variable. Dropping illustrations was a result of such a decision. As Chiang-Soong and Yager (1993) pointed out in their analyses of science books, “it is impossible to have the criteria cover every detailed concern . . . The criteria themselves may be limited in their ability to describe all the possible details within the categories” (p. 347). My decision to document differences in raters coding for the reliability study was affirmed as I learned that some of the variables, such as the function of illustrations, required what Norris and Phillips (1994) refer to as “reasoned judgment” (p. 957). Norris and Phillips note that critical thinking tests require reasoned judgment. This means determinations of characteristics are subject to reasoned decisions of
interpretation, even when careful constructed definitions are provided, rather than a choice of, for instance, a dichotomous trait, such as gender. Based on the process of the reliability study I decided to exclude illustrations, have one category of generalizations, and streamline the coding for supporting facts and captions.

Conclusions

All of the decisions in designing the study came in the wake of casting a wide net in the literature in developing the categories and their rationale, and the methodology and its rationale. Sometimes the guidance was straightforward. More often it was indirect and the result of inferences and continued attention to the literature on educational research methods. Authors would discuss the references to the sources they used in their own methodology which sent me again back to the literature. Researchers drew from the studies done in other disciplines from their own. They tailored their methodology to the problem they were exploring and to their purposes, and summarized it in their documentation. And finally, developing criteria was a systematic, recursive process.
Appendix C

INTER-RATER RELIABILITY STUDY

Table C.1

Reliability Study: Coherence of Contextualization Research Instrument for Book #1

<table>
<thead>
<tr>
<th>Book #1</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bound For America: The Forced Migration of Africans to the New World</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Haskins and Benson, 1999)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocabulary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>1</td>
<td>.83</td>
<td>1</td>
<td>.94</td>
</tr>
<tr>
<td>Form</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Metadiscourse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informational</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Attitudinal</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Illustrations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of illustrations(^2)</td>
<td>1</td>
<td>.33(^3)</td>
<td>1</td>
<td>.78</td>
</tr>
<tr>
<td>Elaborates on Information</td>
<td>1</td>
<td>1.4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Provides New Information</td>
<td>1</td>
<td>.5(^5)</td>
<td>1</td>
<td>.83</td>
</tr>
<tr>
<td>Restates Information</td>
<td>1</td>
<td>1.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Captions for Illustrations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of Captions</td>
<td>1</td>
<td>.33(^6)</td>
<td>1</td>
<td>.78</td>
</tr>
</tbody>
</table>

\(^1\) The raters agreed the branding is part of the generalization related to the Europeans' practice of claiming captives as property. Reliability was 1. when the discrepancy was accounted for.

\(^2\) Question of whether illustrations will be coded for this study has come up for discussion. Objectivity in choice of categories cannot be controlled.

\(^3\) Raters agreed two of the illustrations elaborate on the generalization regarding lack of humane conditions. The agreed that one illustrations elaborates on the explanation of slaver or Guineamen. The raters agreed that illustrations need to be regarded separately in relation to all the research instruments, otherwise, a rater will code the illustration for the first instrument used in the analysis.

\(^4\) The raters agreed about refining the distinction between new and elaborative. Illustrations may require more refined definitions in order for raters to reach agreement.

\(^5\) With the benefit of hindsight raters agreed that two illustrations, related to branding, coded by one rater are more appropriately coded in generalizations, related to common practice. When the illustrations were coded in generalizations the reliability score is 1. A second note on this score: One rater realized the need for practice in using the instruments to assimilate the criteria for coding: all illustrations on a page are counted and then those that elaborate on the vocabulary are counted. In the section on branding, of the four illustrations two of them relate directly to branding.

\(^6\) Raters agreed on the numbers of captions, but one rater had two that were different from those of the other rater. With the benefit of hindsight, on rater agreed that two captions would be related to generalization, common practice of branding, in which case the reliability is .66. Two captions related directly to the attributes of the dungeons in which case, the reliability is 1. Illustrations are to be coded in relation to the adjacent text which is clarified in the definitions. However, illustrations present two problems: First, they can do different kinds of work, showing attributes of terms or elaborating on generalizations; and second, they can be related to higher order ideas across the text. For instance, the illustration of the dungeons and huge fortifications are arguably related to the generalization that slavers perpetrated inhumane conditions in the interest of processing and transporting huge numbers of captives. This generalization is across pages and not limited to one section.
Table C.1 (Continued)

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elaborates on Information in the Text</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>.1</td>
</tr>
<tr>
<td>Gives New Information</td>
<td>1</td>
<td>.4</td>
<td>1</td>
<td>.80</td>
</tr>
<tr>
<td>Restates the Information in the text</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>.1</td>
</tr>
<tr>
<td><strong>Total Proportion</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>.93</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vocabulary Passage #2</th>
<th>Trunks</th>
<th>Barracoons</th>
<th>Branding</th>
<th>Brawl</th>
<th>Ramal</th>
<th>Guineamen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rater #2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Illustrations for Passage #2</th>
<th>Elaborates on vocabulary</th>
<th>New Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>Rater #1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Rater #2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Captions for Passage #2</th>
<th>Dungeon (D)</th>
<th>Branding (B)</th>
<th>Slavers (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Rater #2</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Captions for Passage #2</th>
<th>Elaborates on Info</th>
<th>New Info.</th>
<th>Restates Info.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>B</td>
<td>S</td>
</tr>
<tr>
<td>Rater #1</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rater #2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table C.2

Reliability Study: Coherence of Domain Knowledge Research Instrument for Book #1

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective of the Author</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Raters agreed that captions should be coded in generalizations. When in hindsight captions are moved to generalizations, the reliability .5 and when two other captions, related to the fortifications are included in this instrument reliability is 1.
Table C.2 (Continued)

<table>
<thead>
<tr>
<th>Generalizations</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Generalization</td>
<td>.57(^8)</td>
<td>.50(^9)</td>
<td>.50(^{10})</td>
<td>.52</td>
</tr>
<tr>
<td>Number of Textual Generalizations w/ facts</td>
<td>.71(^{11})</td>
<td>.51(^{12})</td>
<td>.51(^{13})</td>
<td>.56</td>
</tr>
<tr>
<td>Number of Historical Generalizations w/ facts</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.3</td>
</tr>
<tr>
<td>Number of Generalizations w/out Supporting Facts</td>
<td>.5(^{14})</td>
<td>1.</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td>Number of Facts Supporting Generalizations</td>
<td>.66(^{15})</td>
<td>.56(^{16})</td>
<td>.62(^{17})</td>
<td>.61</td>
</tr>
</tbody>
</table>

\(^8\) One rater realized, in hindsight, an AP generalization (treatment of slaves across cultures), should be coded as w/p. The other rater, in hindsight added a P generalization related to diversity of African cultures. When these adjustments are made the reliability is 1.

\(^9\) With the benefit of hindsight, one rater agreed two generalizations should be included in the count. Raters agreed that the one w/p and the one p generalizations, regarding physical condition and common practice are to be counted which would give a reliability of .80.

\(^{10}\) The raters agreed that the third generalization one of them coded is a within page generalization, which would give a reliability of 1.

The additional generalization at the end of the last page, regarding the slaves creation of a home for themselves in the new world and their contribution to a new, growing culture, the raters agreed should be added. Their initial ratings agreed on two of three generalizations, and they agreed, with the benefit of hindsight that the additional one should be included.

\(^{11}\) Raters initially agreed on 5 out of 7 generalizations with supporting facts. One of them, the rater coded as a minus, that is, it didn't have supporting facts. The generalization "People in those times thought slavery was part of the natural order of things" had no supporting facts. The raters agreed this was true, and not counting it was an oversight. The addition gives a proportion, five out of six, with a reliability of .86.

The other rater had an additional generalization regarding the Romans use of slavery that the other rater had coded as causal explanation. But since it is an implicit causal connection. The raters agreed the item should be considered a generalization. When it is coded the reliability is 1.

\(^{12}\) Raters agreed that two generalizations, regarding physical condition and appearance of the captives and the common practice of branding slaves are to be counted in the category which gives a reliability of 1. Not including them initially was a matter of oversight by one of the raters.

\(^{13}\) One generalization at the end of the last page, regarding the slaves creation of a home for themselves in the new world and their contribution to a new, growing culture, the raters agreed should be added. Not coding the second generalization was an oversight. Thus, their initial ratings agreed on two of three generalizations, and their revised agreement gives a reliability of 1.

\(^{14}\) One rater coded a generalization with no supporting facts. With the benefit of hindsight, the other rater agreed this was a valid coding, which gives a reliability of 1.

\(^{15}\) In the initial rating coders agreed on 25 of 39 facts. One rater had coded two facts as causal explanations, namely regarding the Romans need for more labor, and the results of the growth of empire, which were also a need for more labor, at first appropriated from native peoples and then later from Africa. One rater had included statements that elaborated on the facts. The corrected rating was 27 of 25 which gives a reliability of .93.

Determined numbers of facts and counting the numbers of words in them, that are not otherwise coded in metadiscourse is a differentiation perhaps too fine for this study. The variables, numbers of facts, numbers of words in the facts, and structure of facts needs to be rethought.

\(^{16}\) In their independent counting the raters agreed on nineteen of twenty-four. Six of the twenty-four facts are related to a statement about the terror of the captives. The raters agreed these would be removed as they are not related to greed and inhumane conditions. In discussion, their agreement of numbers of facts is eighteen out of nineteen, or a reliability of .95.

The one discrepancy is a result of counting facts related to greed as result of counting a fact that was elaborative. Again the question of whether the definition can account for the distinction is valid.
Table C.2 (Continued)

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of Facts</strong></td>
<td>.80\textsuperscript{18}</td>
<td>.60\textsuperscript{19}</td>
<td>.81\textsuperscript{20}</td>
<td>.74</td>
</tr>
<tr>
<td>Structure</td>
<td>.71\textsuperscript{21}</td>
<td>.70\textsuperscript{22}</td>
<td>.66\textsuperscript{23}</td>
<td>.69</td>
</tr>
<tr>
<td><strong>Assessment of Sources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author's Comment on Source Reliability</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1</td>
</tr>
<tr>
<td>Author's Dealing w/ Conflicting Sources</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1</td>
</tr>
<tr>
<td>Author's Comment on Alternative Interpretations</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1</td>
</tr>
<tr>
<td>Socio-cultural Identification</td>
<td>.66\textsuperscript{24}</td>
<td>.73\textsuperscript{25}</td>
<td>1.</td>
<td>.80</td>
</tr>
</tbody>
</table>

\textsuperscript{17} The raters agreed on the number of supporting facts. The raters agreed that additional facts not included in their original rating should be included. In their original ratings they agreed on twelve of fifteen generalizations. In their corrected ratings their score is 1.

\textsuperscript{18} The raters had 476 (for five generalizations) and 598 (for seven generalizations) words in their word counts. In hindsight the rater realized two generalizations should be coded, one related to Romans' use of slaves, one related to the diversity of cultures in Africa. Their rating score is .89 when the oversights are corrected for.

\textsuperscript{19} In the initial rating, the raters had 309 and 515 words. The additional 206 words were facts of two overlooked generalizations. When the raters corrected for the oversight and the words for the facts supporting the two generalizations are added to the lower number of words, the corrected score is 1.

\textsuperscript{20} This score is another case where one difference has implication through a number of variables. When the words are counted for the three generalizations, the total is 247. With the benefit of hindsight the raters agreed a third generalization was valid, and was to be coded. With a proportion of 200/247 in the initial rating, the score was .81.

As an aside, for the two generalizations the raters agreed upon, their word counts were 200 and 211 words, which gives a score of .95.

(In counting the words of facts, whole sentences are counted, except for words or phrases that are coded in vocabulary, metadiscourse, or other variables, for which single words can be counted.)

\textsuperscript{21} The raters agreed that once the generalizations regarding the Romans use of slaves and the needs of growing empires are reconciled the supporting facts are reconciled as well. They agree that the supporting facts, explain more than describe the generalizations.

\textsuperscript{22} The .79 reliability is a result of 19 of 24. The raters agreed the coding of four of these was an oversight. Raters agreed on the structure of 16 of 19 descriptive facts for the two generalizations they initially agreed upon, giving a reliability of .84. The raters found that when the subcategories of explanation and description are combined the reliability is 1.

This finding suggests, the subcategories are combined so that raters consider narrative structure and descriptive/explanatory as a dichotomous choice in coding for the variable, structure.

One rater, who described herself as being less familiar with the categories and the instruments noted that the number of categories/variables required keeping a lot of information in mind at once during the analysis. Several sweeps of the text were needed to insure identification of material appropriate for the categories. Even then, things got forgotten, unless sweeps of the data were made with a focus on specific parts of the data. Also, clarifying, in the domain knowledge research instrument, that the other categories besides the categories and subcategories related to generalizations were to be coded independent of generalizations is necessary in the definitions, training, and discussion.

\textsuperscript{23} The raters agreed that the facts are descriptive. The description of causes of death, and the accounting for the estimated deaths, the perils that lay ahead once they have survived the middle passage, and the contributions the people made to the culture of the new world are all descriptive.

\textsuperscript{24} Raters agreed that the additional coding for ethnicity, race, and religion were the appropriate codes. Not coding for the additional socioeconomic status, ethnicity, and race was a result of oversight. When the correction is made the reliability is 1.

\textsuperscript{25} Raters agreed that references to individual groups of Africans, such as Yoruba, Fanti, or Ibo, are treated as called an ethnic classification for this variable. The discrepancy was a result of two references to Race,
when they should have been considered ethnic. One rater neglected references to gender and thought this was an oversight. When the race was changed to ethnicity, additional references to gender were added and one reference to religion (whose omission was oversight), the reliability is .90.

Raters agreed one illustration belongs in the generalization pertaining to treatment of slaves in the ancient world. The addition brings the reliability to 1.

Raters agreed that the illustrations of the forts and dungeons are appropriately coded in the contextualization research instrument. This is an example where illustrations have many functions. Their placement in generalizations, related to inhumane treatment is arguably as appropriate as explaining the dungeons, or trunks. In the study, illustrations are to be coded in relation to the text on the page. The raters also agreed that two illustrations, showing leg and neck irons, did not relate to the adjacent text on branding. When these corrections are made the reliability is .83.

One rater coded an illustration as not elaborating on the text, which made the proportion of agreement six of eight illustrations, or .75. The caption for the treatment of slaves added to the proportion, gives a score .88.

The raters agreed that illustrations in common that they coded elaborated on the text. They agreed that all the illustrations elaborated on the text, which gives a reliability of 1.

The raters agreed that one illustration (and caption) showed a flying machine and the text referred to the invention of a helicopter. The raters agreed that technically the illustration did not elaborate on the text. When they make the correction reliability is 1.

Raters agreed that two illustrations elaborated on the generalization that slaves were treated differently in different countries and cultures of the ancient world. This agreement brought the reliability to 1.

Raters agreed that their placement of illustrations has implications for the agreement of captions. Were the raters to include the five captions in the generalizations related to inhumane treatment, and two captions related to fortifications and dungeons, the reliability is 1.

The raters agreed that one of the illustrations showed an airplane while the text talked about Leonardo’s invention of the helicopter. The agreement brings the reliability to 1.

Also they agreed that illustrations both restated information and provided new information, as in the case of the Gutenberg illustration, which shows Gutenberg proofing text from the press.

Raters agreed that the captions elaborated on the generalizations and had been originally placed in a category that was less appropriate, in hindsight. The captions elaborated on the lack of humane treatment of the African captives by the slave traders. When the illustration and caption are corrected, the reliability is 1.

One rater had coded the caption, “Prospective buyer inspects a woman and child,” as new information in relation to the text of the page. The illustration itself shows an American auction platform with a woman in a long dress standing, hugging close to her, a girl child. The other rater coded the caption as restating the text. The raters agreed the caption restates information that is through the book, that the captives were bought and sold a number of times from the time they were captured; the correction gives a reliability is 1.

### Table C.2 (Continued)

<table>
<thead>
<tr>
<th>Illustrations</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elaborates on Generalizations</td>
<td>.6625</td>
<td>.8827</td>
<td>1.</td>
<td>.85</td>
</tr>
<tr>
<td>Does not elaborate on Generalizations</td>
<td>.5300</td>
<td>1.</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td>Captions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of Captions</td>
<td>.7521</td>
<td>.5722</td>
<td>1.</td>
<td>.77</td>
</tr>
<tr>
<td>Captions that Elaborate on Information</td>
<td>.5335</td>
<td>.5345</td>
<td>1.</td>
<td>.67</td>
</tr>
<tr>
<td>Captions that Provide New Information</td>
<td>.75</td>
<td>1.</td>
<td>.535</td>
<td>.75</td>
</tr>
</tbody>
</table>

(table continues)
### Table C.2 (Continued)

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captions that Restate the Information</td>
<td>1.</td>
<td>1.</td>
<td>.56</td>
<td>.83</td>
</tr>
<tr>
<td>Total Proportion</td>
<td></td>
<td></td>
<td></td>
<td>.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Generalizations in Passage #1</th>
<th>#</th>
<th>W/P</th>
<th>P</th>
<th>AP</th>
<th>FAB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Rater #2</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

In hindsight Rater #1 removes 1 AP to w/p and Rater #3 adds a P generalization related to diversity.

<table>
<thead>
<tr>
<th>Level of Generalizations in Passage #2</th>
<th>#</th>
<th>W/P</th>
<th>P</th>
<th>AP</th>
<th>FAB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Rater #2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Rater #2 agreed the one “w/p” and the one “p” generalizations, regarding physical condition and common practice, respectively, are to be counted which would give a reliability of 1.

<table>
<thead>
<tr>
<th>Structure of Facts for Passage #1</th>
<th>#</th>
<th>Des</th>
<th>Exp</th>
<th>Nar</th>
<th>OT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rater #2</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Captions in Passage #2</th>
<th>#</th>
<th>Elaborates</th>
<th>New Information</th>
<th>Restate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Rater #2</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table C.3

**Reliability Study: Coherence of Interrelationships Research Instrument for Book #1**

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Explanation</td>
<td>1.</td>
<td>1.</td>
<td>.66</td>
<td>.89</td>
</tr>
</tbody>
</table>

(table continues)

---

36 One rater coded the caption of mother and child at the auction bloc as restatement of information. It does restate information derived from the text in general, but it is new information, in terms of the text on the page. The raters agreed that for the study, the captions are coded in terms of the text on the immediate or adjacent page. The correction gives a reliability of 1.

37 Raters agreed on the across page explanation in the Amistad event. Rater #2 included one explanation as within page explanation. Rater #1 had included the sentence as part of the narrative related to the generalization that the Amistad event, sometimes called a mutiny, was the most famous one in the period of the slave trade. Raters agreed the explanation would go in generalization as a temporal explanation.
Table C.3 (Continued)

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causal Explanations (^{38})</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description of Individual(s)</td>
<td>.83(^{39})</td>
<td>.84(^{40})</td>
<td>.66(^{41})</td>
<td>.75</td>
</tr>
<tr>
<td>Explanation of Motives</td>
<td>.83(^{42})</td>
<td>.84(^{43})</td>
<td>.66(^{44})</td>
<td>.76</td>
</tr>
<tr>
<td>Explanation of Consequences</td>
<td>1.</td>
<td>.84(^{45})</td>
<td>.66(^{46})</td>
<td>.82</td>
</tr>
<tr>
<td>Explanation of Significance of Event</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>Causal Explanation elaborates on Generalization</td>
<td>.5(^{47})</td>
<td>.5(^{48})</td>
<td>.5(^{49})</td>
<td>.5</td>
</tr>
</tbody>
</table>

\(^{38}\) To be counted, the causal explanations will be explicit in the text, signaled by words or phrases that indicate causality, as outlined in the Definitions section of the study and stated succinctly in the Operational Definitions of the Appendix to the dissertation proposal.

\(^{39}\) The raters agreed that the Romans in one causal explanation were not described, but their actions and their motivations for actions were.

\(^{40}\) The raters agreed that one causal explanation included in her count did not belong separate from another one regarding shark infested waters. The presence of the additional causal explanation accounts for the discrepancy in description, motivation, and consequences.

\(^{41}\) Raters agreed on two of a total of four descriptions between them. The other two they have accounted for and agreed that an explanation rater #1 included was appropriate and rater #2 had an explanation that belonged in another category. Raters agreed one implicit causal explanation belongs in generalizations regarding the Amistad event.

\(^{42}\) The raters agreed that Gutenberg and the invention of the printing press did not include a motivation for his development.

\(^{43}\) The raters agreed the causal explanations included comment of the motivation behind the event in passage #2. The raters also agreed that implicit causal explanations would not be code. That is, causal explanations will have certain signals, listed in the Definitions.

\(^{44}\) Raters agreed that the passage regarding Cinque and the court hearings is appropriately coded in the generalizations category. When this discrepancy is accounted for, the reliability score is 1.

\(^{45}\) The raters agreed on the consequences of the causal events. They agreed the consequences need to be explicit in the explanation for the purposes of this study.

\(^{46}\) Raters agree that the passage regarding Cinque and the results of the court proceedings is part of the category generalizations.

\(^{47}\) Raters agreed the causal explanation about the Europeans' need for resources caused them to enslave people supported the generalization that the last major era of slavery had its roots in the spread of empires.

\(^{48}\) Raters agreed that the fear of mistreatment and terror of what lay ahead caused the people to try to escape when they were going to the slave vessels is an implicit causal explanation related to the generalization that many people died as a result of fear, from being thrown overboard because of disease or lack of provisions, from suicide, from disease, from melancholy, and from hanging. Implicit causal explanations are not coded.

\(^{49}\) Raters agreed the causal explanation is implicit and should not be coded as causal. The references to the court hearing are coded in generalizations. The Americans believed Cinque and the other people had been kidnapped. Their behavior was appropriate for people fighting for their freedom.
Table C.3 (Continued)

<table>
<thead>
<tr>
<th>Illustrations</th>
<th>Elaborates on the causal explanation</th>
<th>Does not elaborate on the explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of illustrations</td>
<td>.35</td>
<td>.77</td>
</tr>
<tr>
<td>Elaborates on the causal explanation</td>
<td>.39</td>
<td>.77</td>
</tr>
<tr>
<td>Does not elaborate on the explanation</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Captions</th>
<th>Elaborates on the Information</th>
<th>Provides New Information</th>
<th>Restates the Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of captions</td>
<td>.32</td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>Elaborates on the Information</td>
<td>0</td>
<td>.67</td>
<td></td>
</tr>
<tr>
<td>Provides New Information</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Restates the Information</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Total Proportion | .82 |

Table C.4

Reliability Study: Integration of Primary Sources Research Instrument for Book #1

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name and Description</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Name</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Quotation</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Paraphrase</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Citation</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

| The Use of the Source     |            |            |            |
| Elaborates on Information |            |            |            |
| In Generalizations        | .94        | .55        | .81        |
| In Causal Explanations    | 1          | .56        | .83        |
| In Other text             | 1          | 1          | .1         |
| Provides Necessary Information |          |            |            |

(table continues)

50 The raters agreed that the illustrations of the murals of the Amistad Affair and Trails would be coded in the generalizations category elaborating on generalizations related to the event. The raters agreed the illustrations elaborated on the event. The raters agreed the illustrations did not elaborate on the illustrations. They also agreed that a two page spread of a print of one painting would be counted as one illustration.

51 The raters agreed the illustrations are elaborative.

52 The raters agreed on the total number of captions in their discussions.

53 The raters agreed the captions did not elaborate on the text. The instrument has been changed so raters can show whether the caption elaborates, provides new information, or restates information. Further refinement of the instrument is indicated from the reliability study, that the captions restate the information in the text, or they do more than that.

54 Raters agreed that one primary source of John Newton should be coded in elaborations of generalizations rather than related to causal explanations. The coding as causal was an oversight.

55 Raters agreed that the primary source elaborated on the generalization, regarding the future of the slaves in the new world and is not related to a causal explanation.

56 The raters agreed the long quotation of John Newton regarding the future of the people in the new world is coded as support of the generalization, that the people faced more hardship in the new world once they survived the middle passage.
In Generalizations

1. Proportion

<table>
<thead>
<tr>
<th>Book #1 Bound For America</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Generalizations</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.</td>
</tr>
<tr>
<td>In Causal Explanations</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.</td>
</tr>
<tr>
<td>In Other text</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.</td>
</tr>
<tr>
<td>Length of Passage</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.</td>
</tr>
</tbody>
</table>

Nature of Connection

<table>
<thead>
<tr>
<th>Nature of Connection</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional Phrase or Sentence</td>
<td>.78</td>
</tr>
<tr>
<td>Restates Text</td>
<td>1</td>
</tr>
<tr>
<td>Provides New Information</td>
<td>1.00</td>
</tr>
<tr>
<td>Successful Use</td>
<td>1</td>
</tr>
<tr>
<td>Unsuccessful Use</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Proportion

<table>
<thead>
<tr>
<th>Category and use of Sources in Passage #2</th>
<th>Des/Na</th>
<th>Na</th>
<th>Quo</th>
<th>Par</th>
<th>E1/G</th>
<th>E1/CA</th>
<th>E1/OT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>15</td>
<td>3</td>
<td>9</td>
<td>9</td>
<td>16</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rater #2</td>
<td>15</td>
<td>3</td>
<td>9</td>
<td>9</td>
<td>17</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Nature of Connections of Sources in Passage #2

<table>
<thead>
<tr>
<th>Rater #1</th>
<th>Transition</th>
<th>Restates</th>
<th>New Info</th>
<th>Suc</th>
<th>Uns</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>1</td>
<td>17</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rater #2</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

57 The raters agreed that the reference to John Newton's paraphrase and quotation about the conditions on board the slaver did not have a transitional sentence. The reference to John Atkins, ship surgeon, and his report on the branding of slaves did not have a transitional sentence. He and his report followed the generalization that branding slaves with the mark of whoever financed the expedition was common practice.

58 The raters agreed that a transitional sentence is not the generalization that the primary source supports, but is related to the source itself. In this instance, of John Newton, Haskins and Benson (1999), refer to his position again, and include a long passage that Newton wrote.

59 The raters agreed that the paraphrases and the quotations provided new information. One rater double coded two sources. Coding primary sources can be a straightforward process. Herein lies a danger; rather than being alert to each category, coding can become automatic. Here is an example where this has happened.

60 One person, John Newton, described once and mentioned, by name another time, is paraphrased and is quoted twice, which accounts for the difference in numbers of sources and the total quotations and paraphrases.

61 Raters agreed on the quotations or paraphrases that did not have a transitional phrase or sentence. The disagreement in scores for the source having a transitional phrase or sentence was a result of including two references with the one transition. Raters agree that statements and paraphrases will be coded separately for each source.
Table C.5

**Reliability Study: Coherence of Contextualization Research Instrument for Book #2**

<table>
<thead>
<tr>
<th>Book #2</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joan of Arc (Stanley, 1998)</td>
<td>1.0</td>
<td>0.92</td>
<td>0.95</td>
<td>0.96</td>
</tr>
</tbody>
</table>

**Vocabulary**

<table>
<thead>
<tr>
<th></th>
<th>Position</th>
<th>Form</th>
<th>Metadiscourse</th>
<th>Illustrations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td>1.</td>
<td>0.33</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>1.</td>
<td>1.</td>
<td>0.95</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>1.</td>
<td>1.</td>
<td>0.90</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.92</td>
</tr>
</tbody>
</table>

**Metadiscourse**

<table>
<thead>
<tr>
<th></th>
<th>Informational</th>
<th>Attitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.95</td>
</tr>
</tbody>
</table>

**Illustrations**

<table>
<thead>
<tr>
<th></th>
<th>Total number of illustrations</th>
<th>Elaborates on Information</th>
<th>New Information</th>
<th>Restates Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Captions for Illustrations**

<table>
<thead>
<tr>
<th></th>
<th>Total number of captions</th>
<th>Elaborates on Information in the text</th>
<th>Gives New Information</th>
<th>Restates the Information in the text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Proportion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.91</td>
</tr>
</tbody>
</table>

---

1. Rater #1 included repetition of the term Loire, which rater #2 did not, which accounts for the discrepancy. Raters chose to include repetitions because when children read they would read the words repeatedly.
2. Rater #1 does not include the term Paris in the vocabulary list, which Rater #2 does.
3. Raters agreed that the term heretic is explained in more than two places. One rater did not code the multiple places.
4. Raters agreed that one phrase coded as topicalizer, "And then," signaling a sequence belonged in another category. They also agreed that the phrase, "You will see," should be coded as preplan.
5. Raters agreed on the additional example of metadiscourse each one had, Rater #1, a hedging, Rater #2, an example of salience. Raters found that a number of the evaluative comments of the author could also be considered generalizations, but kept them in the metadiscourse category. Stanley (1998) provides abundant evidence of attitudinal Metadiscourse in the opening two pages, the introduction and the pronunciation guide. They found eighteen incidences of Metadiscourse in about 860 words. Raters agreed on the incidences of informational Metadiscourse, one topicalizer and one preplan.
6. Raters agreement on the variable as a whole is 1. The reliability is lower in the subcategories. Two of the four scores differ by one. Raters also agreed that "we know more about her than any other woman" has a salient feature, we know more, but is also part of a causal explanation, starting with, "Because of these two documents..." Raters agreed that if a choice is to be made the phrase, "we know more about..." should be coded as a causal explanation.
7. Raters agreed that illustrations elaborated on the narrative. Rater #2 scored the illustration as not restating the vocabulary, heretic, inquisition, apostate, idolatress. These terms could not be defined from the illustration, a long view across the town square of the immolation of Joan of Arc.
8. One of the raters coded the illustrations as not restating the information. It did not elaborate nor provide new information, nor did it restate it. The other rater coded the information as elaborating on the information. Raters agreed the illustration can be coded in reference to several categories, but only tangentially. It does not closely elaborate on vocabulary or generalizations or causal explanations of the text.
9. The illustrations do not have captions. The small illustrations at the tops of pages on which the text appears are coded as illustrations. They have labels of names of places.
Table C.6

Reliability Study: Coherence of Domain Knowledge Research Instrument for Book #2

<table>
<thead>
<tr>
<th>Generalizations</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective of the Author</td>
<td>.80</td>
<td>1.</td>
<td>1.</td>
<td>.93</td>
</tr>
<tr>
<td>Level of Generalization</td>
<td>.88&lt;sup&gt;10&lt;/sup&gt;</td>
<td>1.</td>
<td>1.</td>
<td>.96</td>
</tr>
<tr>
<td>Number of Textual Generalizations w/ facts</td>
<td>.79&lt;sup&gt;11&lt;/sup&gt;</td>
<td>.75&lt;sup&gt;12&lt;/sup&gt;</td>
<td>.89&lt;sup&gt;13&lt;/sup&gt;</td>
<td>.81</td>
</tr>
<tr>
<td>Number of Historical Generalizations w/ facts</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Number of Generalizations w/out Supporting Facts</td>
<td>.5&lt;sup&gt;14&lt;/sup&gt;</td>
<td>1.</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td>Number of Facts Supporting the Generalizations</td>
<td>.75&lt;sup&gt;15&lt;/sup&gt;</td>
<td>.83&lt;sup&gt;16&lt;/sup&gt;</td>
<td>.93&lt;sup&gt;17&lt;/sup&gt;</td>
<td>.84</td>
</tr>
<tr>
<td>Length of Facts</td>
<td>1.</td>
<td>.81&lt;sup&gt;18&lt;/sup&gt;</td>
<td>.86&lt;sup&gt;19&lt;/sup&gt;</td>
<td>.89</td>
</tr>
</tbody>
</table>

(Related text continues)

<sup>10</sup> Raters agreed on the differences in within page generalizations. Rater #1 had considered a generalization regarding news spreading in the middle ages as being within page. Rater #2 saw the generalization as being across multiple pages, as relating to the understanding of the French army's campaign under Joan.

<sup>11</sup> Raters agreed that one generalization was also coded as comment on reliability. Since an item can be counted for only one variable, raters agreed it should be considered a comment on source reliability. We do not know the exact birth of Joan because peasants did not keep records. One rater had a generalization the other rater did not, that the people knew who the enemy was. Raters agreed this is supported by information across pages.

<sup>12</sup> Raters agreed on the coding of three of the four generalizations in passage #2. They included the discussion of her not reading and writing as generalization because Stanley (1998) discusses what Joan did write. The author counters her argument of not writing and having to dictate letters, with the fact that Joan wrote her name.

<sup>13</sup> Raters agreed that the one generalization, "The trial had been tainted with fraud," should be coded.

<sup>14</sup> Raters agreed that Stanley (1998) makes statements that are not supported with facts. She says that Charles VI was considered mad, and then tells the story of what happened in light of his madness. (The political correctness of the term has been discussed. In Joan's time would he have been considered mad? Perhaps so since Stanley uses the term. The raters have wondered to what extent Stanley pondered the use of the term mad.) The second assertion is "Word spread quickly." Stanley proceeds to tell what the word was, rather than to support the assertion that word spread quickly. The third instance of an unsupported assertion was Stanley's comment that Joan's parents were strict. However, when strict is combined with Catholic parents and good Catholic children the generalization is supported.

<sup>15</sup> The supported generalization of Rater #1 has one fact that the other rater does not have, so they agree on nine of 12. The raters agreed that the fact should be coded as a supporting fact. See chart for supported and unsupported facts for passage #1.

<sup>16</sup> Rater #1 included two facts related to Joan's not reading and writing. Rater #2 considered them as one fact.

<sup>17</sup> Raters agreed that the three theories supporting the generalization that sometimes in studying history we have to leave some things as mystery because we cannot know, are theories or possibilities more than they are facts. However, if conjecture and possibility, or process of reasoning might be considered tantamount to a supporting fact, then the theories can be classified as support for the generalization. The raters coded the three theories as alternative interpretations so they cannot be coded as supporting the generalization.

<sup>18</sup> The raters agreed that the length of facts difference is a result of their having a different number of facts. If those are taken into consideration the count for length of facts is within three words of one another.

<sup>19</sup> The ratio is 222:257 words in the facts.
Table C. 6 (Continued)

<table>
<thead>
<tr>
<th>Book #2 Joan of Arc</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>.83</td>
<td>.83</td>
<td>.71</td>
<td>.79</td>
</tr>
<tr>
<td>Assessment of Sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author's Comment on Source Reliability</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Author's Dealing w/ Conflicting Sources</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Author's Comment on Alternative Interpretations</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Total Number of Illustrations</td>
<td>1.</td>
<td>.5</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td>Elaborates on Generalizations</td>
<td>1.</td>
<td>.5</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td>Does not elaborate on Generalizations</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Captions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of captions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Captions that elaborate on the illustrations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Captions that provide new information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Captions that restate the information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Proportion</td>
<td></td>
<td></td>
<td></td>
<td>.91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Textual Generalizations supported and unsupported for Passage #1</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Rater #2</td>
<td>13</td>
<td>2</td>
</tr>
</tbody>
</table>

20 Raters agreed that differentiation between description and explanation was a difficult one. The distinction between description/explanation and narrative was easier in the study. They agreed on the descriptions that should be explanations and narratives. They also agreed on the explanation. This variable will be changed in the instrument so that the structure is coded as primary source, causal explanation, or other, which will include narrative and description.

21 Raters have refined the differences between explanation and description, but find them perhaps too fine for reliability. See chart on the next page.

22 Raters agreed Stanley's explanation that all the quotes in the book are from two transcripts, one from Joan's trial and one from her Rehabilitation.

23 Raters agreed that "others explain it differently" was an instance of conflicting sources.

24 Raters agreed that socio-cultural identification is coded when reference to any of the categories provides information to the text which is more than purely descriptive. For instance, Stanley (1998) refers to the French and English many times in a single page, pertaining to the warring back and forth and the numerous battles they submitted themselves to. All references are not coded, but only those that make a point, creates an image or an impression, for instance, Charles VII, the Dauphin, was a teenager of nineteen without wealth to build an army. In this case, the statement is coded as Gender, age, and socio-economic status.

25 The raters agreed that one coding, related to age in the statement beginning with "I had a daughter," needs to be added to the total.

26 Raters agreed that the illustrations elaborate on the narrative of the text, more than any of characteristics of coherence. However, they also agreed that the illustration of Joan's wound may obliquely elaborate on Joan's foretelling her wounding. Also, illustrations "do work" for other generalizations, such as, her presence inspired the army, while the high command disregarded her. The illustration shows the French fighting purposefully and successfully. Illustrations can be "read" in many ways.

27 Raters agreed the little illustration with labels supported the information regarding Joan's actions and the disregard of the English at Tourelles.
Raters agreed that the "since" construction of causal explanations could cause misunderstanding and statement with such construction must be examined carefully. For instance in one sentence, the causal phrase follows the salient phrase, "This is not as outrageous as it sounds, since over the course of the previous three hundred years..." Raters agreed not to include certain causal explanations because they were part of Metadiscourse, and the "you" construction, such as, "You are used to war, because..."

Further, they agreed not to include the implicit causal construction of the following sentence. "The English, convinced their claim was just, invaded France." The causality implied is that because the English thought their claim was just, they invaded France. The causality implied is that because the English thought their claim was just, they invaded France.

Raters agreed that information given in other sections relevant to the individual and does not concern the event is coded as within page or page but not across page. In the opening section, the reader learns the extent of Joan's schooling. In the section with the causal explanation about her dictating letters, the readers learns that she learned to write her name. The causal explanation is coded in the within page category. Raters agreed that the causal explanation regarding Joan's clothing and being harassed in prison is an implicit causal explanation, signaled by the word, "Had." Raters also agreed that the sentence, "because of these two documents, we know more about Joan than any other woman before modern times," is causal. One rater coded "we know more about her than any other woman" in Metadiscourse, as salience.

To be counted, the causal explanations will be explicit in the text, signaled by words or phrases that indicate causality, as outlined in the Definitions section of the study.

The raters coded two of four causal explanations and each added another explanation. The category in the chart named clothes, the sentence for this causal explanation is the last in the paragraph regarding the clothes she wore, and the differing views of her wearing men's clothes. The sentence reads, "Either way, as Joan said several times, it would not have happened had they put her in a church prison." Her being in a public prison made her vulnerable to the taunts and harassment of the prison keepers. The word, "Had" signals the causal explanation. The raters agreed that the causal explanation needs to be explicit and include defining language that is given in the definitions for the study. Raters agreed that the statement regarding our knowledge of Joan is a result of having two documents, the transcript of her trial and her rehabilitation are to be coded as causal explanation. One rater had coded the passage as salient Metadiscourse, we know more about her than any other woman. The difference in the score for motivation

With reference to the causal explanation related to Charles clearing her name, the raters agreed that the text does have consequences, and discusses significance of the event to the overall account.
Table C.7 (Continued)

<table>
<thead>
<tr>
<th>Book #2 Joan of Arc</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation of Significance of Event</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>Causal Explanation elaborates on Generalization</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
</tbody>
</table>

**Illustrations**

| Total number of illustrations | 1.         | 1.         | 1.         | 1.         |
| Elaborates on the causal explanation | 1.         | 1.         | 1.         | 1.         |
| Does not elaborate on the explanation | 1.         | 1.         | 1.         | 1.         |

**Captions**

| Total number of captions | 1.         | 1.         | 1.         | 1.         |
| Elaborates on the Information | 1.         | 1.         | 1.         | 1.         |
| Provides New Information | 1.         | 1.         | 1.         | 1.         |
| Restates the Information | 1.         | 1.         | 1.         | 1.         |

**Total Proportion**

| .94 |

**Causal explanations in Passage #3**

<table>
<thead>
<tr>
<th>Joan/Cross</th>
<th>Charles clearing her name</th>
<th>Two docs</th>
<th>Clothes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rater #2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Causal Explanations in Passage #3**

<table>
<thead>
<tr>
<th>#</th>
<th>Des/Ind</th>
<th>Motives</th>
<th>Conseq</th>
<th>Sig</th>
<th>General.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater #1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Rater #2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Raters agreed on two of the three explanations, and each of them had a different third explanation. Rater #1 had an explanation related to our knowledge of Joan because of the two transcripts from her trial and rehabilitation. Rater #2 had an explanation related to Joan's clothes and being in a public prison rather than a church prison. Raters agreed on two of the items for motive, but Rater #2 included a third explanation for which a motive was given, so the ratio of agreement is 2/3. Not all explanations had motives.

Table C.8

Reliability Study: Integration of Primary Sources Research Instrument for Book #2

<table>
<thead>
<tr>
<th>Book #2 Joan of Arc</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name and Description</td>
<td>1</td>
<td>1</td>
<td>.83</td>
<td>.94</td>
</tr>
</tbody>
</table>

(table continues)

The raters have agreed the causal explanation mentioned in footnote 21, regarding Joan's clothes is not explicit according to the definitions. When it is removed, and its coded significance is subtracted from the total of scores for significance, the reliability is 1. That is both raters agreed that Charles action to clear Joan's name had both consequences and it was significant in terms of the account. The author makes clear the significance of the action in the last section of the book.

Raters agreed that one item regarding Joan asking for a cross, can go in the category causal explanations. When this discrepancy is reconciled the reliability is 1.
Table C.8 (Continued)

<table>
<thead>
<tr>
<th>Book #2 Joan of Arc</th>
<th>Passage #1</th>
<th>Passage #2</th>
<th>Passage #3</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>1.</td>
<td>.75&lt;sup&gt;35&lt;/sup&gt;</td>
<td>.91&lt;sup&gt;36&lt;/sup&gt;</td>
<td>.89</td>
</tr>
<tr>
<td>Quotation</td>
<td>1.</td>
<td>1.</td>
<td>.82&lt;sup&gt;37&lt;/sup&gt;</td>
<td>.94</td>
</tr>
<tr>
<td>Paraphrase</td>
<td>1.</td>
<td>.5&lt;sup&gt;38&lt;/sup&gt;</td>
<td>.85&lt;sup&gt;39&lt;/sup&gt;</td>
<td>.78</td>
</tr>
<tr>
<td>Citation</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td><strong>The Use of the Source</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elaborates on Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Generalizations</td>
<td>1.</td>
<td>.66&lt;sup&gt;40&lt;/sup&gt;</td>
<td>.93&lt;sup&gt;41&lt;/sup&gt;</td>
<td>.86</td>
</tr>
<tr>
<td>In Causal Explanations</td>
<td>1.</td>
<td>1.</td>
<td>.5&lt;sup&gt;42&lt;/sup&gt;</td>
<td>.83</td>
</tr>
<tr>
<td>In Other text</td>
<td>1.</td>
<td>.66&lt;sup&gt;43&lt;/sup&gt;</td>
<td>1.</td>
<td>.89</td>
</tr>
<tr>
<td><strong>Provides Necessary Information</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Generalizations</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>In Causal Explanations</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>In Other text</td>
<td>1.</td>
<td>.5&lt;sup&gt;44&lt;/sup&gt;</td>
<td>1.</td>
<td>.83</td>
</tr>
<tr>
<td><strong>Length of Passage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td><strong>Nature of Connection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitional Phrase or Sentence</td>
<td>1.</td>
<td>.83&lt;sup&gt;45&lt;/sup&gt;</td>
<td>.93&lt;sup&gt;46&lt;/sup&gt;</td>
<td>.92</td>
</tr>
</tbody>
</table>

<sup>35</sup> The phrase, "Where, it is said, she pulled the arrow out herself," was coded by one rater in primary sources and by the other rater in Hedging. They agreed the phrase could be considered a hedge.

<sup>36</sup> Raters agreed that where a name of a person occurs, and description of the person has been included previous to the mentioning of the name, the name will be coded as Description/Name. In one instance, one rater committed the oversight of categorizing one name in the Name column, when he, Durant Laxart, had been described in the text.

<sup>37</sup> Raters agreed that the statement beginning with "the Royal Commission concluded . . . ." should be coded as a paraphrase and not a quotation.

<sup>38</sup> The proportion in this cell is a result of the paraphrase mentioned above, " . . . it is said . . . ." The only discrepancy in the coding is a result of the difference in footnote 23 which the raters reconciled.

<sup>39</sup> The one rater, included the phrase, "I had a daughter . . . ." and the subsequent text as paraphrase. The rater agreed the sentence can be coded as a quotation. ????

<sup>40</sup> The raters agreed that the discrepancy related to the term "cowgirl." The one rater included it in the category for other text because it was related to the narrative, regarding the English response to her telling them they should leave. See chart.

<sup>41</sup> The raters agreed that an item can be coded for one variable. In this case, the raters agreed that the statement with, "The Englishmen wept at it . . . ." is part of the generalization. When this discrepancy is accounted for the agreement is 1.

<sup>42</sup> One rater coded the Englishmen crying as a causal explanation. The raters agreed the quotation refers to the generalization that the people were unnerved and grieved by the spectacle. When the resolution of the discrepancy is taken into account the reliability score is for elaborating on information.

<sup>43</sup> Raters agreed that the quotation regarding the English hooting back at her, "Cowgirl." The raters agreed that the quotation belongs.

<sup>44</sup> The raters agreed on out of two uses of primary sources in this category. The other item was the statement with the phrase, " . . . it is said . . . ." mentioned in footnote 23.

<sup>45</sup> When the paraphrase "It is said" is not included in this proportion it becomes 1. The proportions below that are .83 also become 1. when the "it is said" phrase is removed.

<sup>46</sup> The discrepancy involves the inclusion of the phrase, "Others explained it differently. The raters agreed the phrase goes in the category of conflicting sources. When this discrepancy is reconciled, the reliability score is 1.
The discrepancy here is that one rater scored the passage, "Do you mean us to dine here?" in all three places, as having a transitional phrase or sentence, as restating the text, and as giving new information regarding the sentiments of the crowd at Joan's burning. The rater agrees that the statement does not restate the text but provides new information.

The raters agreed that the statement regarding the two noblemen does restate the text. This is an important agreement because the restatement refers to the mention of the two noblemen much earlier in the text. That is restatement of the text does not mean the text has to be adjacent to the primary source restatement.

The raters agreed that the phrase, "When, it is said . . ." is in the category of hedging. When the discrepancy is considered and reconciled for this variable, the reliability score is 1.

Rater #2 had included a sentence, regarding Joan's asking for a cross, that Rater #1 had put in another category, where the raters agreed the sentence belongs. When this discrepancy is taken into consideration the reliability score for this variable is 1.
Table D.1. (Continued)

<table>
<thead>
<tr>
<th>Page No. and para</th>
<th>Vocabulary</th>
<th>Metadiscourse</th>
<th>Captions* Related to Running Text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Explicit</td>
<td>Information</td>
<td>Attitude</td>
</tr>
<tr>
<td>Position</td>
<td>Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Illustrations which had been included in the original design of the study and in inter-rater reliability study were deleted from subsequent analysis because of the results of the inter-rater reliability study.
Table D.2. (Continued)

<table>
<thead>
<tr>
<th>Page no. and para.</th>
<th>Perspective Of the Author</th>
<th>Textual and Historical Generalization</th>
<th>Author's comments on the Source Reliability</th>
<th>Author's Dealing With conflicting Sources</th>
<th>Author's comment on Alternative Interps.</th>
<th>Socio-cultural Identification</th>
<th>Captions* related to Running Text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P</td>
<td>+ # Elab S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>El Restate Diff</td>
</tr>
<tr>
<td></td>
<td>I N T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>#</td>
</tr>
</tbody>
</table>

*Illustrations which had been included in the original design of the study and in inter-rater reliability study were deleted from subsequent analysis because of the results of the inter-rater reliability study.
Table D.3. (Continued)

<table>
<thead>
<tr>
<th>Page no. and para.</th>
<th>Level of explanation</th>
<th>Description of Individuals</th>
<th>Explanation of motives</th>
<th>Explanation of consequences</th>
<th>Explanation of significance of event to account</th>
<th>Causal Explanation elaborates on Generalization</th>
<th>Captions* Related to Running Text</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Win Page</td>
<td>Page</td>
<td>Across page</td>
<td></td>
<td></td>
<td></td>
<td>Elab</td>
</tr>
<tr>
<td>#</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>#</td>
</tr>
</tbody>
</table>

*Illustrations which had been included in the original design of the study and in inter-rater reliability study were deleted from subsequent analysis because of the results of the inter-rater reliability study.
Table D.4. (Continued)

<table>
<thead>
<tr>
<th>Source</th>
<th>The use of primary sources</th>
<th>Nature of Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page no.</td>
<td></td>
<td>L</td>
</tr>
<tr>
<td>Name and description</td>
<td></td>
<td>Trans</td>
</tr>
<tr>
<td>Name</td>
<td></td>
<td>Restates text</td>
</tr>
<tr>
<td>Category</td>
<td></td>
<td>New Info</td>
</tr>
<tr>
<td>Elaborates on information as a supplement</td>
<td></td>
<td>Successful Use</td>
</tr>
<tr>
<td>Takes the place of necessary information</td>
<td></td>
<td>Not successful Use</td>
</tr>
<tr>
<td>quo</td>
<td></td>
<td>gen</td>
</tr>
<tr>
<td>para</td>
<td></td>
<td>ce</td>
</tr>
<tr>
<td>cit</td>
<td></td>
<td>other</td>
</tr>
<tr>
<td>gen</td>
<td></td>
<td>gen</td>
</tr>
<tr>
<td>ce</td>
<td></td>
<td>ce</td>
</tr>
<tr>
<td>other</td>
<td></td>
<td>other</td>
</tr>
</tbody>
</table>
BIOGRAPHY OF THE AUTHOR

Sandip LeeAnne Wilson (born November 6, 1945) was raised in California where she graduated from Pomona College in 1968 with a bachelor's degree in government and history. During her junior year she studied at American University, in Washington D.C., and completed a research project on the National Endowments for the Arts and the Humanities, concerning the arts and government. She earned a secondary teaching credential at the University of California, Berkeley, in 1969, and taught social studies and language arts. She earned a master's degree at Cambridge College in 1988 where she studied adults learning English as a second language. She later worked with a diverse population of students at the College as their advisor, instructor, and writing tutor.

In 1997 Sandip undertook her graduate study in literacy education. Her publications include "A Metaphor is Pinning Air To The Wall: Children's Use of Metaphor" in Childhood Education: Infancy Through Early Adolescence and "Giving Voice to Teachers' Concerns About Safety," in the Maine Journal of Education. Currently, Sandip is an adjunct graduate instructor in the College of Education and Human Development of the University of Maine. During the school year 2000-2001 she was a University Graduate Research Assistant, a position which allowed time and resources for the research and analysis of the study on coherence in children's nonfiction literature. She was the recipient of awards from the Office of the Vice President for Research and the Linda N. Lancaster Professional Development Fund of the College of Education and Human Development to present material at national conferences of the National Council of Teachers of English. She is a candidate for the Doctor of Education degree in Literacy Education from the University of Maine, December, 2001.