

ABSTRACT

ESL SECONDARY STUDENTS READING-WHILE-LISTENING: IMPROVING ACADEMIC READING COMPREHENSION WITH RECORDED TEXTS

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Secondary ESL students face hours of textbook reading assignments, assignments that take them far more time than their native English-speaking peers. This study sought to discover if ESL students could improve their reading comprehension by reading along with a recording of their textbook. Nine participants with a full range of reading proficiencies read along with a recorded text every other week for seven weeks. Reading comprehension was measured with immediate recall protocols and delayed recall protocols. Comparisons were then charted for the two reading methods. The results indicated the usefulness of using the reading-while-listening method for ESL high school students with reading proficiencies above the most basic level. Individual interviews following the study found that the students would like to use the reading-while-listening method again, especially in science courses. The study also included a native-language survey and looked for correlations between the highest scores and the participants' interest in reading.

ESL SECONDARY STUDENTS READING-WHILE-LISTENING:
IMPROVING ACADEMIC READING COMPREHENSION
WITH RECORDED TEXTS

by
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*To Gordy,
whose encouragement made all the difference,
my heartfelt thanks and love!*

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CHAPTER ONE: INTRODUCTION

Have you ever tried to lift the backpack of a typical high school student?! If not, try it! It will astonish you by its weight! Besides a CD player, a bottle of water or soda, it will likely be filled with several large, heavy textbooks. In ninth grade, students soon discover that textbooks are going to be a big part of their lives (Harklau, 1994).

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Textbooks are generally expository, intended to be read for the information they provide. Secondary students are often expected to read textbook assignments at home and then use that information in class discussions, activities and tests (Harklau, 1994). For recently immigrated students who are still learning English, comprehending a textbook reading assignment can be very challenging. Textbooks contain linguistically complex language, academic vocabulary and have reduced context support for the non-native reader

(Cummins, 1981). As a result, secondary English-as-a-Second-Language (ESL) students are often faced with hours-long reading assignments, assignments that may take their native English-speaking classmates one half or one-third the amount of time (Strong, et al, 2002). Even though ESL students slowly labor to read these expository texts, many still find that they do not understand what they have just read and/or do not remember it for very long (Lyon, 1998; LaBerge & Samuels, 1974). The ability to read accurately, with appropriate speed and expression, orally or silently is called *reading fluency*. It is a key factor in reading comprehension (Adams, 1990; Kuhn and Stahl, 2000; Ihnot, 1991; Dowhower, 1987).

In an effort to help students comprehend expository texts in spite of this lack of fluency, many language researchers have focused on reading strategies to aid the struggling ESL reader. Because of this research, English-Language-Learners' (ELL) teachers help students with content comprehension by using teaching practices such as previewing vocabulary and concepts and building on students' prior knowledge. They teach their students to recognize text structures and *how* to read expository texts; for example: reading titles and subtitles, looking at pictures and captions, pre-reading chapter questions, and using graphic organizers (Cooper, 1993; Cooter and Flynt, 1996; Mohan, 1990).

Fewer researchers have looked directly at methods to assist or improve reading fluency as a way to increase reading comprehension. Of the fluency research there is, most addresses the needs of young, native English speaking readers-readers for whom English

is their first language-as opposed to the adolescent English Language Learners (ELL) involved in this study (Chall, 1996; Lyon, 1998; Kuhn and Stahl, 2000). The fluency studies that addressed older native English readers indicated the following three conclusions: 1) fluency training increases reader comprehension; 2) fluency instruction is valuable for those students who have not yet conquered the prosodic features of intonation, stress and tempo that indicate fluency in both oral and silent reading; and 3) fluency instruction may help students read more difficult texts than they could otherwise (Kuhn & Stahl, 2000). These conclusions seem to indicate the usefulness of exploring the suitability of fluency training for older ELLs who are still struggling with the prosodic features of intonation, stress and tempo and to document any evidence that indicates that they will be able to read more difficult texts than they could otherwise and with more comprehension.

There are several instructional approaches to improving reading fluency, including assisted reading, repeated reading, and classroom interventions. In a review of these practices, Kuhn and Stahl (2000) looked at one particular form of assisted reading called *reading-while-listening*. When using this method, the student reads the textbook while listening to a recording made by a native English speaker. This reading-while-listening approach was chosen for this study because it has been found to produce significant gains in reading comprehension for older readers (Kuhn & Stahl, 2000). The purpose of this paper is to present the findings of a seven-week study of reading comprehension in which a reading-while-listening approach is used with high school ESL students. The participants ranged in reading proficiency levels from one to four, on a scale of one to

five of the Test of Emerging Academic English test (TEAE), a Minnesota state-mandated ESL reading test. Weekly, they read a four-page section from their school's mainstream American history textbook; four of the weeks they read along with an unabridged audio recorded text, while the other three weeks they read *without* the recording . The study documents the reading comprehension of secondary ESL students both (1) when their reading fluency is supported by a recorded, native English speaker, who provided the prosodic features of stress, intonation and expression and (2) when they read on their own. Documentation of reading comprehension includes (1) immediate recall protocols, (2) delayed recall protocols, using the textbook's section review comprehension questions and (3) surveys of the students' perceptions of the effectiveness of this assisted reading approach in improving their comprehension. Additionally, the results of a self-reported native-language literacy survey are included, showing the strength of any correlations between greater recall and enjoyment of reading; this, to look for signs that the recordings can help students who find reading less than enjoyable.

In Chapter 2's literature review, there is a more complete look at the research currently available on the following topics: importance and challenges of expository reading; listening and reading comprehension and their relationship; reading development; reading fluency; and assessments available for measuring reading comprehension.

CHAPTER TWO: LITERATURE REVIEW

The following literature review surveys research that shows the need for supporting ESL students' efforts in comprehending secondary, expository textbooks. It includes an explanation of the importance and challenges of expository reading, including a discussion of the differences between oral, social language skills called BICS and academic language skills called CALP. Additionally, there is a review of the research of listening and reading comprehension, reading developmental stages, reading fluency and fluency training, and assessments useful in measuring reading comprehension. The literature review also shows that the important linguistic area of reading fluency, addressed by this study, has been underrepresented in classroom strategies to promote reading comprehension.

The Importance and Challenges of Expository Reading

While students are exposed to many genres throughout their educational careers, expository or informational texts are the mainstays of their secondary curriculums (Harklau, 1994). Newspaper articles, magazines, reference books and textbooks are examples of expository texts used in classrooms (Cooter & Flynt, 1996).

Textbooks and other expository texts are linguistically challenging to English language learners. The academic language used in texts is much more difficult to comprehend than

the “everyday” language we use to speak with one another socially (Cummins, 1999). Writers of academic texts assume their readers have developed the linguistic knowledge of a native speaker. Such knowledge includes more than just “knowing the meanings of words.” Native English readers recognize the meaning of words in context; know their pronunciations, grammatical functions and so much more. They recognize how the word relates to its sentence and how the sentences form meaning in larger patterns. This knowledge is stored at an unconscious level, and it is a rare native-speaker who can articulate the knowledge they possess about their own language in general and reading in particular (Cipollone, et al, 1998). Writers of academic texts also assume that their readers have been a part of the American school system and know a lot about American culture. Thus, there are many references to events, people, values, and other culturally-based topics that many English language learners may not immediately recognize (Cummins, 1981).

The two types of languages referred to above-academic and social-also differ in the important area of acquisition time. It takes a few months to two years in an English-speaking school to acquire the ability to communicate with others about daily life. This skill is referred to by language experts as a *basic interpersonal communicative skill* or BICS. BICS is more easily attained than academic language because social conversations are greatly aided by gestures, intonation, and facial expressions. Speakers also have the opportunity to negotiate meaning with one another when comprehension begins to break down (Cummins, 1981).

The more demanding language skill is achieving CALP or *cognitive academic language proficiency*. CALP is required especially when reading higher level material or in situations where comprehension is not aided by contextual or interpersonal cues. The reader or listener is much more dependent on being able to use linguistic cues for comprehension. More time is required to acquire CALP than BICS. Cummins' (1981) research indicates it is five or more years before English language learners catch up to their native English-speaking peers in academic language. The ESL students who enter the American school systems during their high school years are obviously in a time crunch when it comes to continuing their education in a manner that allows them to reach their full potential. They do not have the five plus years needed to catch up to their peers in academic language before they also want to go to college and begin careers.

Researchers continue to look for ways to reduce this time frame (Flowerdew and Peacock, 2001) but in the meantime our teaching practices must offer our secondary ESL students assistance in reading and comprehending the difficult expository texts that are at the heart of their high school education (Mohan, 1990). One such practice includes offering students fluency training (Kuhn and Stahl, 2000). This topic will be discussed later in this chapter and is the method chosen for this study to enhance reading comprehension, the focus of this study.

In addition to the difficulties ESL students encounter in any expository text, I have found that my English language learners especially struggle with the reading assignments in their American history classes. Researchers suggest that this is due to the fact that American students learn about American history from kindergarten on, building on

themes and concepts over their elementary and middle school or junior high years. By the time they are in high school, they have acquired a great deal of knowledge about their country's history (Peregoy and Boyle, 1997; Burkhardt and Sheppard, n.d.). As an example, in one of the assigned textbook readings, the English language learners involved in this study read about homesteading. Not a single one of my students had even heard of the concept while it can be safely assumed that their American classmates had read many historical fiction stories, seen movies, TV shows, and been taught about homesteading throughout their elementary years. Secondary English Language Learners (ELL), on the other hand, must pick up all of this prior-taught information while learning the new concepts and American history content presented in high school. An American history textbook was chosen for this study, in the hope that it would begin to help my students' comprehension in that challenging area.

Comprehension

Listening Comprehension

Listening and reading comprehension are separate but closely linked skills, with listening comprehension developing prior to reading comprehension (Chall & Jacobs, 2003; Biemiller, 2003). Researchers studying listening comprehension have found that native speakers provide many cues that aid the listener's comprehension. As previously stated, comprehension of face to face conversations is aided by gestures, intonation and facial expressions. However, there are many situations where the speaker is not visible-for example, a telephone conversation-or able to negotiate meaning-for example,

listening to the radio or to recorded material. In these situations, listening comprehension is still aided by a feature of language called prosody. Prosody includes the aforementioned *intonation* as well as *stress*, *tempo* and *pauses* (Read and Schreiber, 1982; Harley, 2000). To demonstrate the function of *stress* as an example, consider the differences in meaning between the following two statements: 1) “I want the RED bandana.” (not the blue one); 2) “I want the red BANDANA” (not the red scarf) (Kuhn and Stahl, 2002). Native speakers use these prosodic features to group words into chunks of information (Peppé & Maidment, 2000), and along with other native-speaker linguistic knowledge, are more able to discern the speaker’s meaning.

Reading Comprehension

Research indicates that this strong reliance on prosody for listening comprehension spills over into reading comprehension as well (Schreiber, 1991). Punctuation marks in written texts are prosodic cues, but in general, most prosodic cues are missing from a printed text. Researchers in the fields of education, psychology and linguistics have observed that L1 (first/native language) readers find meaning in a written text by 1) using their *linguistic* knowledge of phonetics, phonology, morphology, syntax and semantics in combination with 2) *pragmatic* information (Guerra, n.d.), which gives context to what is read.

Unfortunately, ESL readers can be lacking in both linguistic and pragmatic information.

In textbooks, ESL students are likely to receive some help enhancing their pragmatic information, but it is less common to find support for their lower level *linguistic* needs.

As an example, the following excerpt is from the section on homesteading:

“Settlers relied heavily on each other as they built new communities from the ground up. Families cooperated in raising houses and barns, sewing quilts, husking corn, and providing other forms of support.”

(Cayton, et al, 1998).

The textbook section includes a picture of a family in front of two sod houses and a drawing of a homestead that included some of the work that needed to be done. The layout of the text is helpful, too. In this case, the preceding two paragraphs under the subtitle “Cooperation in the West” are about the difficulty of working on a homestead. This might provide readers with the mindset-or context-that it would be necessary to help one another, thus aiding comprehension. There are no context cues, however, for the way “heavily,” “raising” or “ground” are used in this paragraph or defining what a quilt is and what husking corn entails.

Some linguistic help *is* given by the paragraph’s punctuation, which assists in grouping some of the words into thought ideas; however, a native speaker would also group together the following phrases: “relied heavily,” “on each other,” “as they built new communities,” and “from the ground up”. Native-speakers would also stress some of the words as being more important: “heavily,” “new,” “families,” “houses,” “barns,”

“sewing,” “husking,” and “other.” So while the English language learner still needs to discover what “heavily” and “husking” means, there is less importance to “ground,” “raising” and “quilt.” This study focuses on providing ESL students’ with linguistic assistance through the use of a recording by a native speaker. The native speaker is able to provide the ESL reader/listener with the prosodic features of intonation, stress, tempo and pauses that can enhance the reader/listener’s reading comprehension.

Reading Development

Reading is a developmental process that researchers describe as beginning with focusing on letters to finally focusing on meaning (Leu and Kinzer, 1995). As in reading fluency, research on reading development has focused mainly on young, native speakers who are learning to read for the first time. There is not a generally accepted model of reading development for people who already know how to read but are now learning to read in another language. Bernhardt (n.d.) strongly indicates a need to proceed with research into second language reading processes but acknowledges that the sheer amount of research required is formidable. Bernhardt (n.d.) explains that understanding how second language readers learn to read must include research into such areas as the reader’s first language literacy abilities, the reader’s age, and literacy information about each of the many L1 languages of our second language learners. Because of the lack of research in second language reading development, this study uses the Chall Reading Development model (Chall, 1996) which has been constructed from research using young, L1 learners, learning to read for the first time. This study does not assume that reading development

of L2 learners is the same as L1 learners, but it looks to the model as a guide to an area of possible need for the older ESL students who participated in this study, all of whom learned to read in their native languages, although to varying levels of proficiency.

Chall's Model of Reading Development identifies six stages in the learning-to-read process. The stages identified by Chall's research are as follows: Level 1) emergent literacy; Level 2) basic, English decoding skills; Level 3) developing the prosodic features of intonation, stress and tempo, or reading fluency; Level 4) reading expository texts or reading for instruction; Level 5) reading multiple viewpoints; and Level 6) being a critical reader. All the participants in this study were beyond Chall's Level 1, having become aware of the connection between letters and meaning in their first languages. Most were generally beyond Level 2, as well, although English Language Learners often can learn to pronounce a word correctly without knowing what it means. This is an important difference between native language readers and second language readers and indicates that vocabulary development must also be an important part of ESL curriculums. However, at Chall's Level 3, many of the participants demonstrated inconsistent reading fluency when reading academic texts. According to Chall's reading development model, reading fluency is a prerequisite for gaining proficiency in reading expository texts (Level 4), which, as stated earlier, is the mainstay of secondary curriculums. In fact, secondary students are expected to be beyond Level 3 in reading development and to be developing their skills at the higher level reading stages (Levels 5 and 6). Secondary ESL students, therefore, are faced with assignments that may be beyond their reading development level. This study looks at the idea that fluency support

would be useful in ESL students' academic reading development, and ultimately improving their reading comprehension. It explores the notion that reading fluency for second language learners is as important to reading comprehension as it is for L1 language learners.

Reading Fluency

Definition

Most definitions of reading fluency include these three areas: reading accurately with appropriate speed and with appropriate expression. Readers must reach a point of automaticity or accurate, instant recognition of words and acquire knowledge of native-like intonation, stress and tempo (Kuhn and Stahl, 2002) in order to read fluently. While it would seem that intonation and stress might refer only to reading aloud, it has been shown that these prosodic features are used by proficient readers in silent reading as well and affect comprehension (Adams, 1990). In this study the English Language Learners read along with a recorded native English speaker, who provided the prosodic features of intonation, stress, pauses and tempo. This practice, a form of assisted reading, is research-based and has been used to improve student fluency and consequently comprehension (Kuhn & Stahl, 2000).

Fluency Instruction

Kuhn & Stahl (2000) reviewed current practices for developing fluency in older, struggling readers. They concluded that fluency instruction was valuable for students who

were reading at level three of Chall's Model of Reading Development. This is the level at which the reader develops the prosodic features of intonation, stress and tempo. Additionally, they observed that fluency training may help those students read more difficult texts than they could otherwise.

Reading-While-Listening

Of the instructional approaches to develop fluency discussed in Kuhn and Stahl (2000), I chose to explore a form of assisted reading using a recording of the text. Students read while listening to a recorded version of their text. Reading-while-listening studies reported in Kuhn and Stahl (2000) were found to produce significant gains in several areas of reading achievement, including comprehension.

There were some qualifications to these results, however. Kuhn and Stahl (2000) noted that the students who made significant gains in these studies were 1) monitored and 2) were required to be able to read a section of the reading aloud, with appropriate intonation, stress and tempo. Programs that used this assisted reading method in an unstructured manner did not see the same improvements. For this study, students were monitored and required to answer content questions following the reading. The deviation from requiring students to read the passages aloud and answering questions instead was a bow to the reality of the mainstream classroom. If reading-while-listening is to be a useful addition to English language learners' study time, it needs to help them with authentic assignments. It is unlikely that a mainstream teacher will be able to take the

time to listen to a student demonstrating reading fluency. Answering content questions still provides motivation to take the reading-while-listening seriously.

Finally Kuhn & Stahl (2000) suggest that this assisted reading technique is easy to implement. The ease of implementation seems an important side benefit for busy teachers interested in using assisted reading for their struggling readers. Recordings of textbooks are available from publishers and, at our school, are generally used by visually impaired students or native English-speakers who have reading difficulties. In some cases, the publisher's recording of the textbook is not in an unabridged form, but rather is a summary reading of the text. This would not provide the student with word-for-word reading support and thereby an opportunity to increase their reading fluency. In this case high quality recordings can be made (with permission) by using recording software and a computer installed with a microphone and CD-making software. The software used in this study is entitled All Recorder and was available online at <http://www.allrecorder.com/> for less than thirty dollars. This was not a time-consuming activity for this study, but for longer reading projects, volunteer student readers could be trained to do the recording.

Assessments

Recall Protocols

Up until now, this paper has often focused on the role of reading fluency in reading development, but the reason for the study is to discover if *reading comprehension* can be improved for second language readers of academic texts. There are multiple

means of measuring reading comprehension including recall protocols of several types (free, cued, guided, teach-back, think-out-loud), sentence or word recognition, fill-in-the-blank, answering multiple choice questions, and free response questions (Schiefele and Krapp, 1996; Usable Design, n.d.). Recall protocols are often used in second language reading research. Protocols are recommended by experts because they allow the participant the freedom to tell what they know. This provides much more information than, for instance, a rubric that might ask respondents to choose a number from one to five to indicate their response to predetermined or leading questions (Bernhardt, 1991; Borderia-Garcia and Oskoz, n.d.). This study will use a free recall protocol, with participants writing everything they can remember immediately after finishing with the reading. Some of the participants will give oral recalls, due to low-level writing proficiencies. An elicitation will be used to encourage all of the participants three different times to write or tell more if they can.

Delayed Recall

A second assessment will be completed the day following the reading. The participants will answer the four or five comprehension questions found in the textbook at the end of each reading section. The amount of information recalled after a time lapse will provide additional information regarding the depth of their comprehension of the reading material (Schiefele and Krapp, n.d.). Each student will be asked to write as much information as they can about each question. There will be no discussion among the participants before writing their answers. To evaluate the written recall, an outline was made of the textbook information relating to the questions; each point on the outline will

be considered a possible idea unit. The total possible idea units range from nine to seventeen with the median score being 15. Note: The participants will have seen these questions before they read the textbook section, as they will be used as part of the pre-reading exercises the day prior to each reading.

Survey of Students' Perceptions

In addition to the recall protocols, participants will be surveyed to discover if they find reading-while-listening helpful to their understanding of the text. This will be done because the students' interest or lack of interest in doing assisted reading can affect the outcome of the recall as well (Schiefele and Krapp, 1996).

Conclusion

In conclusion, English Language Learners face a stiff challenge every time they are asked to read their academic textbooks. While it is extremely important to teach them strategies that will help put any new information in context, it is also important to help supply linguistic information not available in written texts. In this study, the linguistic information supplied was the native-speaker modeling of important prosodic features to enhance reading comprehension. Recall protocols and participant surveys have been proven to be effective ways to discover from the students themselves, the degree of improvement. A description of how the two recall protocols and the survey were used in this study will follow in Chapter 3.

CHAPTER THREE: METHODS

The nine participants in the study were members of a secondary ESL social studies class in a large suburban high school. They were in ninth through eleventh grades and ranged in English reading proficiency from Level 1 to Level 4 out of five levels on the Minnesota Test of Emerging Academic English (TEAE). Their native languages included Amharic, Cambodian, Somali, Spanish, and Thai. The theme of the textbook readings was a sequential look at American history from 1860 to 1900, not including the Civil War. The data was gathered over the course of seven weeks during the first semester, beginning nine weeks into the school year.

Preparation

Recorded Texts

The textbook (Cayton, et al, 1998) used in the study was the same text used by the mainstream tenth grade American history program. Because the publisher of this textbook offered only an abridged recorded version, the readings were recorded by the researcher using a computer with recording software, CD burning software and a microphone. An internet search located the software program to make the recordings. The software is called All Recorder and cost less than thirty dollars. A free trial of the software was available at <http://www.allrecorder.com/>. The only other cost involved was for blank CD's. The readings were recorded using a slightly slower than normal reading

pace and good expression, as an accommodation for the students who were at a lower English listening proficiencies (Carbo, 1994). The recordings were similar in length; averaging 13 minutes (see Appendix D). Two types of CDs were made: those that could be used with a computer, and those that would play on a CD player. This was done so that students who owned CD players could use their own equipment while those who did not have a CD player could use the school computers.

The Reading Selections

The readings used in this study were taken from the same textbook so that they would be comparable in discourse structure. They were four pages long with approximately 1300 words (see Appendix D). They are identified on charts by using the chapter and section numbers used by the textbook: for instance, Reading 8.3 is found in Chapter 8, Section 3.

The recording times of the readings were also very similar in length, ranging from thirteen to fifteen minutes. When students were using the recorded CDs, they were able to bring their own CD players, if they preferred; or they were able to use the school headphones and computers. When the students were reading *without* the recording, they were given fifteen minutes to read, to mirror the times *with* the recordings. With both methods, students were asked to fill out the appropriate recall protocol form: With or Without the Recorded Text (Appendices A and B). The top of both forms asked for the participant's alias, the date and the pages read. For the days when they read *without* the recorded text, they also needed to accurately describe how much they had read, in order

to be able to determine the percentage of idea units they had read. Then they were simply instructed to begin reading, with the reminder that they would be writing down everything that they could remember immediately following. After the time had elapsed, books were closed. Without any discussion, students wrote what they remembered; those who needed to be interviewed were taken quietly to the side, out of earshot of the others, to give an oral recall protocol. After each student was finished, the researcher encouraged them to think of any additional information and to add that to their papers. Each student was encouraged three times to see if they could remember any additional information. This was done with the participants who wrote by themselves as well. Many times students did add material when asked if they remembered anything else.

Determining Idea Units for Recall Protocols

In preparation for evaluating the participants' reading comprehension through a recall protocol, each reading needed to be divided into its main idea and supporting idea units (Horning, 1985). The researcher was assisted in this endeavor by an undergraduate class in the education department at Hamline University in order to give more validity to the choice of idea units. The twenty-eight education students were divided into seven groups of four people, each group responsible for one of the readings. The groups of four divided again, this time into partners. First, just the partners worked together, circling the main ideas and underlining supporting ideas on copies of their reading. An example of a main idea taken from one of the readings is "For those who labored in the factories, work was a family affair" Some supporting ideas include: "Because wages were low, no one person could earn enough to sustain a household;" "Girls sometimes took factory jobs so

that their brothers could stay in school;” “If an adult breadwinner (could not work), children ... had to bring in cash or go hungry” (Cayton, et al, 1998). The partners then returned again to their groups of four. The groups of four compared and resolved any differences in their choices of main ideas. Seven of eight readings were marked for main ideas and supporting ideas in this manner. An eighth reading was marked by the researcher prior to the meeting of the class to use as an example when introducing the exercise to the Hamline class.

The Hamline group did not identify the third type of idea unit called “Details Used in Context” as there were simply too many possibilities. Using the above examples of Supporting Ideas, some examples of Details Used in Context are “If an adult breadwinner became ill,” “If an adult breadwinner died,” “If an adult breadwinner could not find or keep a job” and “children as young as six or seven.” Misunderstood Ideas also were not predetermined, but identified when an identified main idea, supporting idea or detail was misinterpreted.

The copies marked by the Hamline group were used by the researcher to evaluate the participants’ recall protocols for both quantity and depth of comprehension. To determine the quantity of recall, the marked text provided the total number of supporting idea units that the reader would be able to recall. Depth of comprehension was exhibited by identifying main ideas (Schiefele and Krapp, n.d.). Turn to Appendix C to see an example of a page marked with the idea units.

As a side note, it was important to me that the recorded texts not be seen as a replacement for good reading strategies but rather as an additional resource, so the students were taught pre-reading and reading strategies in ESL classes at the beginning of the school year. The day prior to each reading, the class read and discussed the titles, subtitles, captions of pictures and the review questions found at the end of each reading section. These are the same questions that were used for the delayed recall protocol.

Summary of Materials and Equipment

The materials and equipment gathered for this study included unabridged recorded versions of the American history textbook currently used in our school's 10th grade curriculum; a CD player or computer with a headphone for each participant; recall protocol forms for students' use (Appendices A and B); one copy each of the reading assignments, marked with protocol units for the evaluation of the data; and copies of the survey to gather the students' perceptions of the helpfulness of reading-while-listening (Appendix K).

Weekly Procedure

The readings for this study were done by the participating students one day a week for seven weeks in a regularly scheduled ESL class. The class period was fifty minutes long. The plan was to have the students use the recorded versions every other week. This

alternating of weeks was an attempt to reduce possible bias due to normal student progress over time and the students' increasing content knowledge due to the sequential, thematic nature of the textbook. However, one of the readings was accidentally recorded out of order, so at one point, the participants used the recorded version two weeks in a row and then read without the recordings two weeks in a row.

Recall Protocol

The students read for approximately fifteen minutes. After each reading session, participants were asked to immediately write as much as they could remember about the reading on the recall protocol forms (Appendices A and B). They were invited to write in their home language if they preferred, but all participants chose to write in English.

Three students were interviewed individually during the same time that other students wrote their recall protocols. The students who were interviewed generally were not able to write well, one because of a disability and the others due to a beginning level writing proficiency. An elicitation method was used with all the participants, which simply encouraged the student to try to remember additional information by asking three different times "What else do you remember?"

A secondary but important use of the recall protocols was to require a product each session. Research indicates that the reading-while-listening method is most effective when the readers are held responsible for using their reading time well (Kuhn and Stahl, 2000). Telling the students ahead of time that they would write down everything that

they could remember was to provide the students with a purpose for concentrating on the text.

When students read *without* the recordings, they read for the specified time of fifteen minutes. This meant that the students read differing amounts of text, depending on their reading speed. Therefore they needed to do the additional step of recording which pages and paragraphs they had read so that the total possible number of idea units could be determined. This information was recorded on the top portion of the recall protocol form (Appendix B).

In the Chapter 4: Results, the comprehension of the ESL readers is described from multiple viewpoints. First, the results compare the number of “main ideas,” “supporting idea units,” “specific details,” and “misunderstood information” students recalled when 1) reading along *with* a recorded text and 2) reading *without* a recorded text. Identifying the main ideas is an indication of the depth of the reader’s comprehension as opposed to the quantity of total “idea units” (Schiefele and Krapp, n.d.). Additionally, Young (1999) found that identifying misunderstood information was significant in fully observing the comprehension of the second language readers. The misunderstood information was classified by its importance to comprehension and assigned negative points of -1, -2 and -3. A negative one indicates a misunderstanding that did not critically hinder comprehension. A negative two indicates a misunderstanding of a supporting idea while a negative three indicates a misunderstanding of a main idea. Misunderstood information is weighted rather heavily in this study, more so than information that was simply not

recalled by the participants. It mirrors the researcher's concern that misunderstanding of a reading would be more detrimental to comprehension than simply not recalling. All four types of recalled information are evaluated separately as well as in combination in quantity of ideas recalled. Main ideas and supporting ideas are also evaluated for percentages of ideas recalled.

Delayed Recall Protocol

The day following a reading, participants were asked to write the answers to the section review questions that were found in the textbook at the end of each reading. Each participant wrote the answers to as many of the questions that they could. There was no discussion before to ensure that each student wrote only what they remembered from the reading the day prior. To evaluate the written recall, an outline was made of the textbook information relating to the questions; each point on the outline was considered a possible idea unit. The total possible number of idea units ranged from nine to seventeen with the median score being 15. The data is displayed in terms of percentage of information recalled and the scores for the two methods of reading are compared.

End of Study Survey

Besides the weekly recall protocols, a survey was administered orally at the end of the study to discover the students' perceptions of how well they comprehended the material with and without the recorded versions (see Appendix K). Beyond questions about comprehension, the students were also asked if they could read for longer periods of time

when using the recordings. They were also asked if they would want to continue the use of a recording beyond the study or if they would want to try a recording for another subject area besides American history. It seemed important to add this information to the study, since students will not be interested in using a resource unless they feel they are benefiting in some way. The survey of student perception is summarized in narrative form.

Conclusion

In summary, the participants' comprehension is described from three different points of view: immediate recall protocols, delayed recall protocols and a survey of the participants' perceptions of the usefulness of reading-while-listening for improving reading comprehension. Chapter 4 will detail the results of these three assessments and summarize the data. Many graphs will give a picture of the difference between the number of recalled idea units for each method of reading: with or without a recorded text.

CHAPTER FOUR: RESULTS

The results of this study are described from three points of view: amount of information recalled immediately after reading; amount of information recalled the following day, demonstrated by answering review questions in the textbook; and a survey of participants' perceptions of the success of the study. Additionally, the results of the native language literacy survey are shown in relationship to the results of the two methods of reading used in this study. They all show that the recordings were helpful to most of the participants, most of the time.

Immediate Recall Protocol

The immediately recalled main ideas and supporting ideas were looked at in terms of the average *quantity* of ideas recalled per reading, as well as of the average *percentage* of ideas recalled per reading. The need to look at percentages was due to the self-pacing nature of reading *without* the recorded text where participants read varying amounts of the text. *With* the recordings, each student completed 100% of each reading. Averaged numbers were used because not all of the participants were available to read all seven of the four-page textbook readings.

The information recalled by the participants immediately after reading was evaluated for four types of idea units: main ideas; supporting ideas; specific details used in context; and

misunderstood ideas, as described in Chapter 3: Determining Idea Units for Recall Protocols.

These idea units were also evaluated in two ways: first, each idea unit was considered as having equal value; secondly, the idea units were weighted according to the importance of the information to comprehension. Main ideas are of key importance to comprehension of a text. Therefore, main ideas identified were given a weight of three. Supporting Ideas were defined as information that was descriptive of the main ideas of the reading and still very important to comprehension. These supporting ideas were given a weight of two. Specific-details-used-in-context was given a weight of one because the information contributes to the topic but is not necessary for the comprehension of the main ideas. Misunderstood information was included in a second evaluation to provide further insight into the comprehension of the reader. They were assigned negative values in correlation with the type of information misunderstood. For example, a misunderstood main idea was assigned a value of -3, while a specific detail was valued at -1. This rather heavy weight on misunderstood information is included because misunderstanding the main idea, for instance, will create confusion and hinder comprehension of its supporting ideas.

(NOTE: One of the participants did not recall any idea units and therefore will be shown on all the data charts at “0.” This participant had a lot of difficulty with reading and writing, and was one of the participants interviewed orally during the recall protocols. Even with an interviewer, he was still only able to list key words, rather than telling the

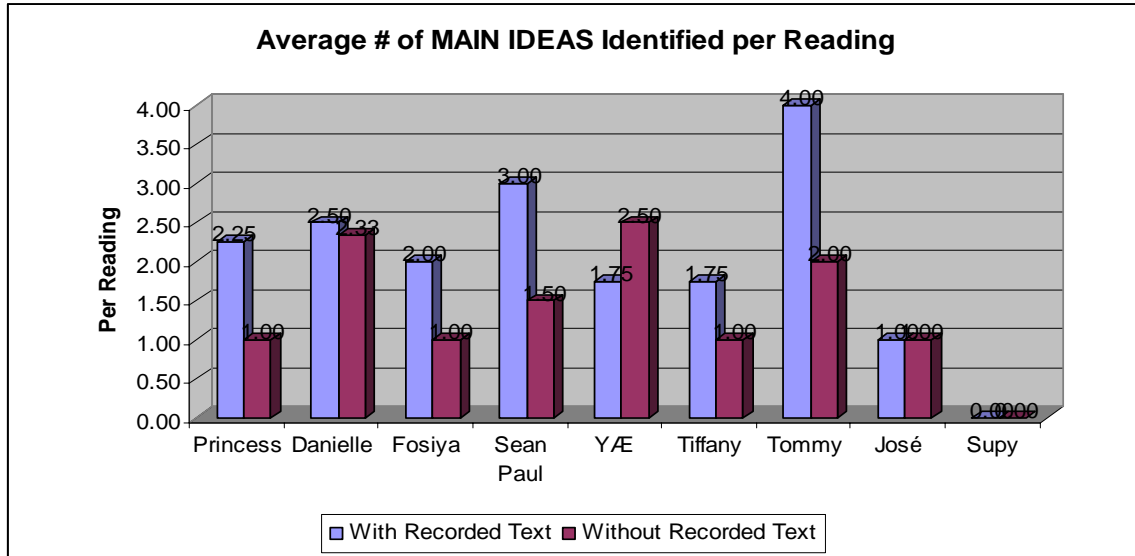
main ideas or supporting ideas. Since the study results don't show this information, it appears as if the participant did not participate! However, he did participate fully and always made his best effort. He listened to three of the four recordings and listed three [Reading 8.3], eleven [Reading 9.2] and six [Reading 9.5] words that applied directly to the reading for an average of 5.25 words per reading. He read Reading 8.4 *without* the recording and listed four words that directly applied. For Reading 9.4 [*without* a recording], he was given a lower level reading from another textbook on the same topic and then was able to list one main idea, two supporting ideas and one key word; these were not included in the study's data, and he was listed in the data charts as not doing the reading that day.)

In the following paragraphs, comparisons of data will always be stated in this order: reading along *with* a recorded text followed by reading *without* a recorded text.

Main Ideas

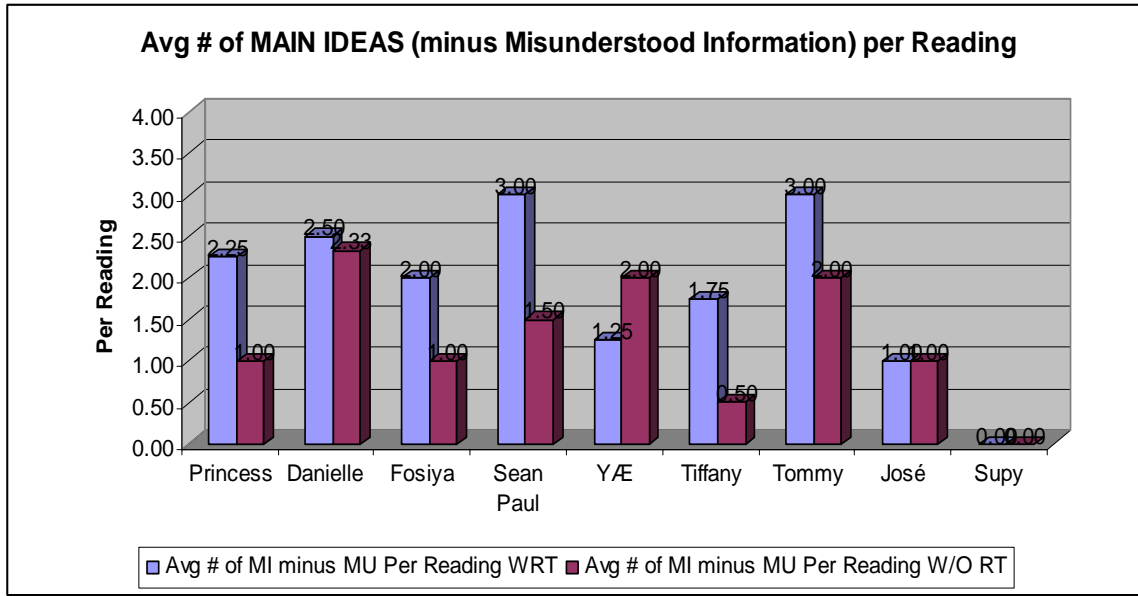
Quantity of Main Ideas. In terms of quantity of main-ideas-recalled, the study showed that all but three of the nine participants recalled more main ideas when they read along *with* the recorded text. One recalled equal amounts with both methods and one recalled more *without* the recorded text; one did not recall any main ideas. See Figure 1A for the individual participant scores.

Figure 1A



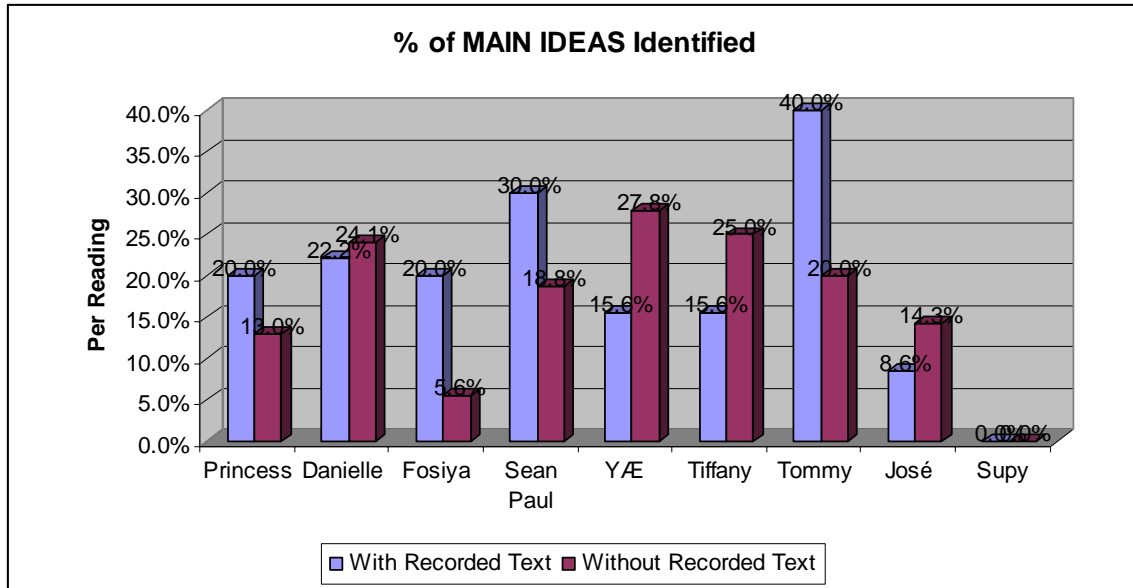
Misunderstood Main Ideas. Two of the participants misunderstood one main idea each when reading *without* a recorded text. After subtracting out the misunderstood main idea for each, there is no substantive difference in the results. The altered scores for Tiffany and YÆ are reflected in Figure 1B

Figure 1B



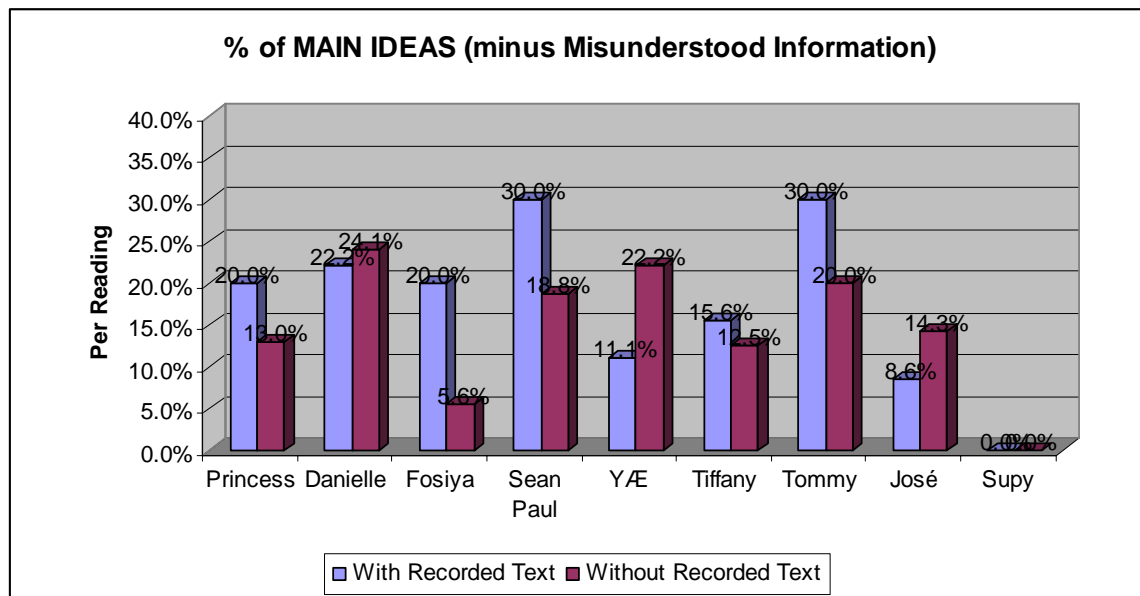
Percentages of Main Ideas Recalled. *With* the recorded text, participants read 100% of each reading section. *Without* the recorded text, participants read varying amounts of text. As an example, participants read from 30% to 100% of Section 8.4, with a median percentage of 70% of the total reading. To be able to compare their scores, it was determined how many main ideas they had indeed read, using the information participants had written on the top of their recall protocol forms (Appendix B). Then the percentage of main ideas they recalled was charted, again comparing the two methods of reading. When comparing these percentages, four of the participants recalled more main ideas when reading *with* a recorded text. Four of the participants recalled a higher percentage of main ideas when reading *without* the recorded text. See Figure 2A.

Figure 2A



Misunderstood Main Ideas (%). Once again, misunderstood information was subtracted out for another view of the recall data. Subtracting out the misunderstood main ideas in this case affected Tiffany's score in a dramatic way. The score changed from a strong preference for reading *without* a recorded text to a better percentage of ideas recalled when reading along *with* a recorded text. See Figure 2B.

Figure 2B

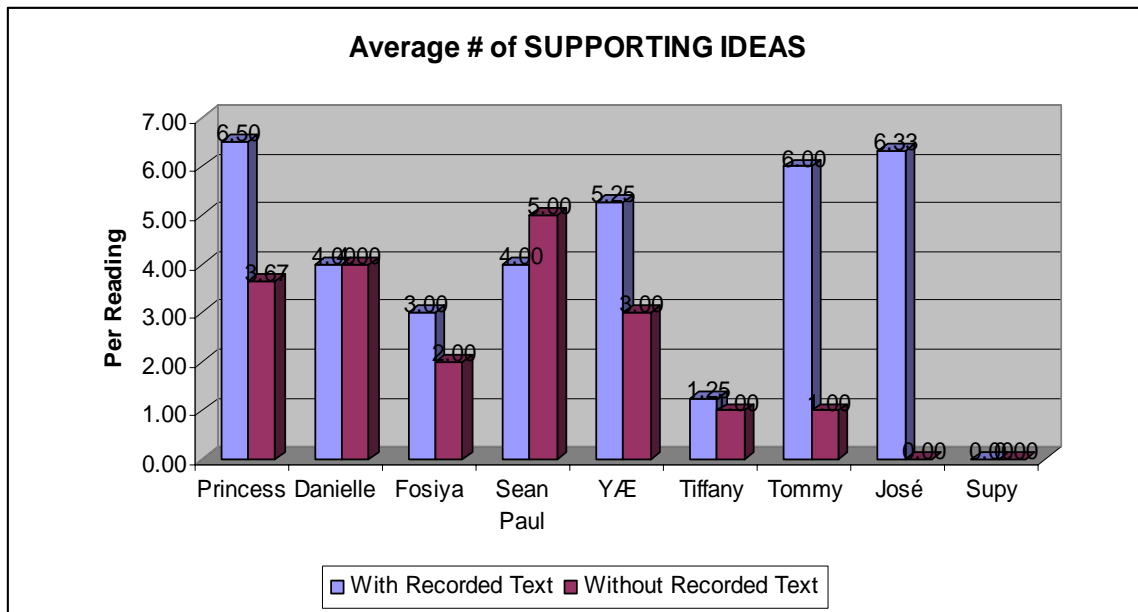


Low Numbers of Recalled Information. The averaged-numbers and percentages of main-ideas-recalled reported in the paragraphs above, seem very low. Further research could discover if native English speaking students would also be able to recall only a small percentage of material read *just one time through* as the participants did in this study. To be more specific: to discover if high school native-speakers of English, with a varying range of reading proficiencies, and reading a similar type of history textbook section for the first time, would also recall low percentages of the main ideas. Perhaps a more important area to research would be to discover if the real numbers of recalled information would increase if ESL students listened to the recordings more than once over a period of time. Most interesting to know would be how many evenings would a student need to spend fifteen minutes reading along *with* a recording to be able to recall a majority of the main ideas?

Supporting Ideas

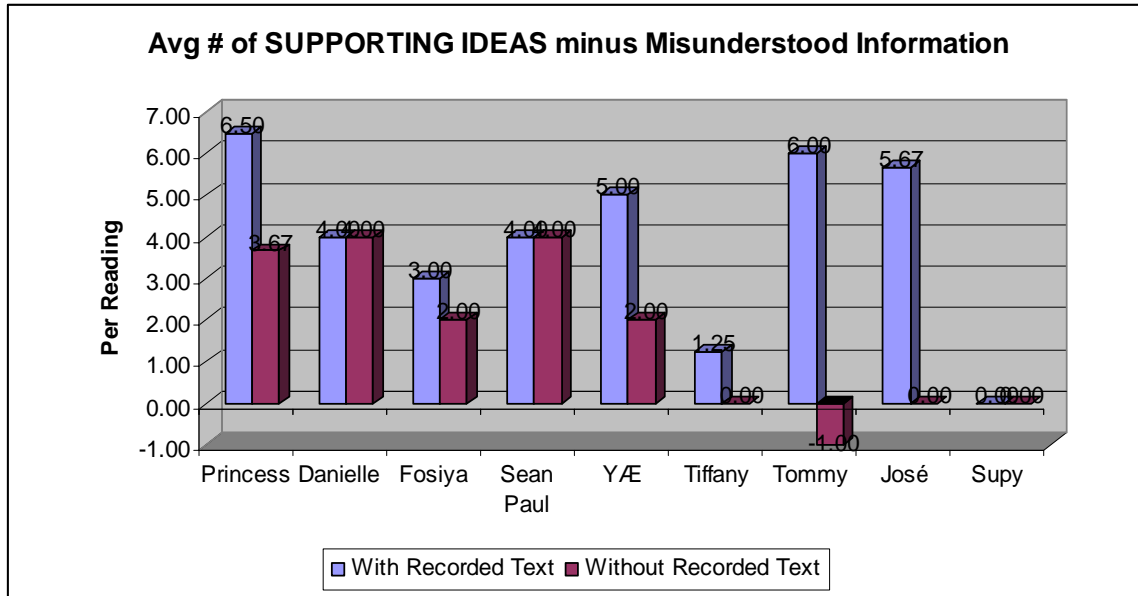
In terms of quantity of supporting ideas identified, six of the participants recalled more supporting ideas when they read along *with* the recorded text. Of the other three, one participant did not recall any supporting ideas, another recalled an equal number with both methods, and the third recalled more supporting ideas when reading *without* the recording. See Figure 3A.

Figure 3A



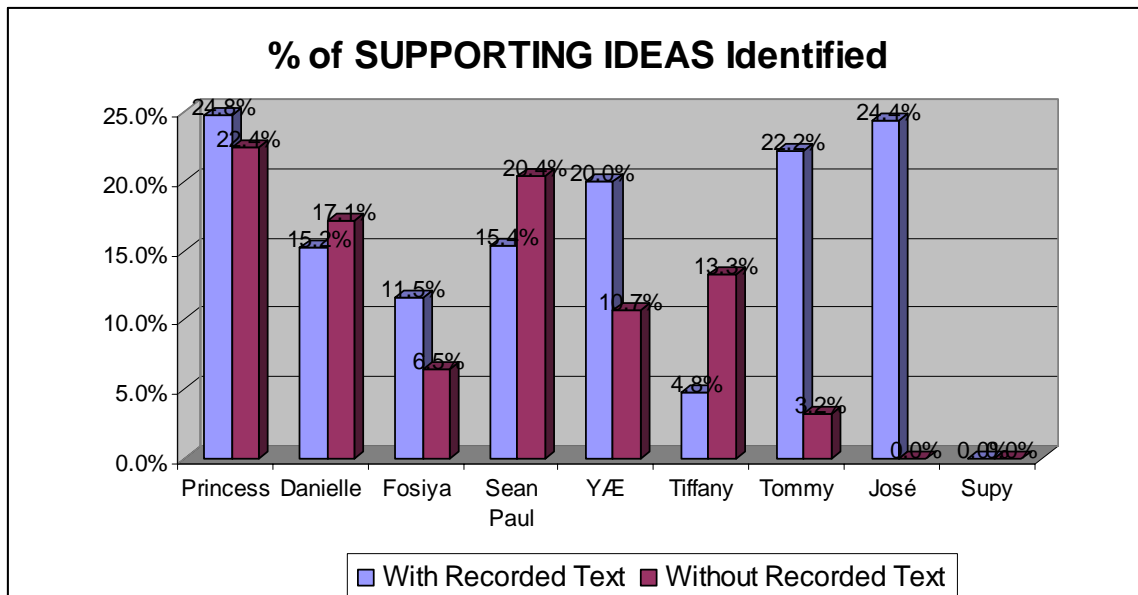
Misunderstood Supporting Ideas. Several participants misunderstood supporting ideas with both methods. The altered scores for José, Sean Paul, Tiffany, Tommy and YÆ are shown in Figure 3B. The most substantial difference was for Sean Paul, who no longer shows an advantage for reading *without* a recorded text.

Figure 3B



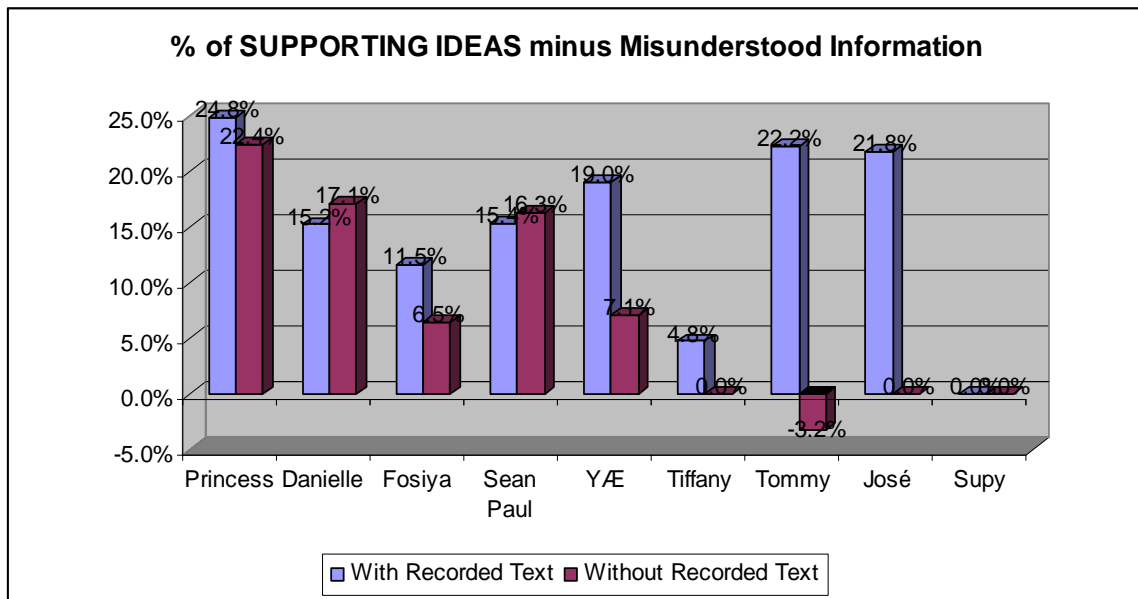
The percentage of supporting ideas recalled was very similar for the two methods. On an individual basis, five participants recalled more supporting ideas when they had used the recorded text, three recalled more *without* the recording and one did not recall any supporting ideas. See Figure 4 A.

Figure 4 A



Misunderstood Supporting Ideas (%). Figure 4B shows the effect of subtracting misunderstood supporting ideas. Tiffany once again switches preference from more misunderstood supporting ideas *without* the text to more *with* the recorded text.

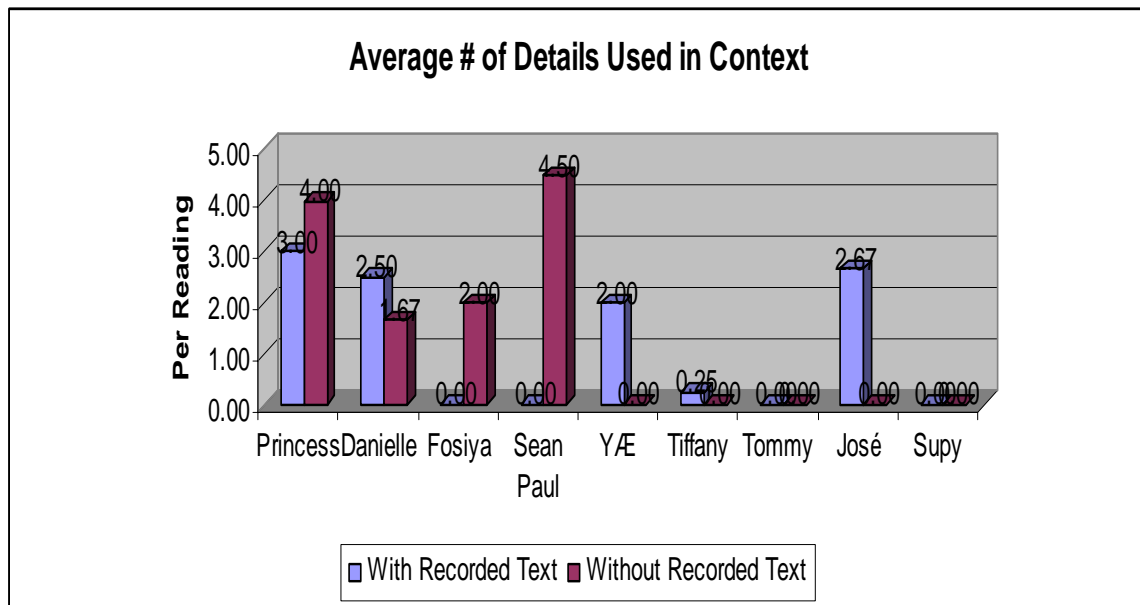
Figure 4B



Details Used In Context

In the recall protocols, participants recalled some specific details, dates and names and used them in context. This type of information was given a weight of one in the final compilation of the idea units because it added to the body of information but was not absolutely necessary to the comprehension of the text as a whole. These results were very mixed on an individual basis: four of the participants recalled more details *with* the recorded text, three recalled more *without* the recorded text, and in several instances, students did not recall any details. Percentages were not determined for this last category, as there were so many possible details in each reading that it would have been difficult and time-consuming to obtain a reliable number. See Figure 5.

Figure 5



Final Tally: Total Number of Idea Units

For an overall picture of information recalled, a new term will be introduced: idea units. This will be used as a general term to refer to all three types of information observed in this study: main ideas, supporting ideas and details used in context. The idea units were combined in four combinations using the two methods of reading (*with* and *without* the recorded text) and the two methods of calculation (non-weighted and weighted idea units). See Appendix E.

Non-Weighted Idea Units. In this calculation each category of idea units was considered to have equal value, including misunderstood information. Six of the participants identified more idea units *with* the recorded text than when reading without the recorded text. One identified more *without* the recorded text. One identified the same number of Idea Units with both methods. One participant is shown not identifying

any information. This participant is a beginning reader who listed key words on the recall protocol instead of ideas. Individual participants' scores are shown in Figures 6A & B.

Figure 6A

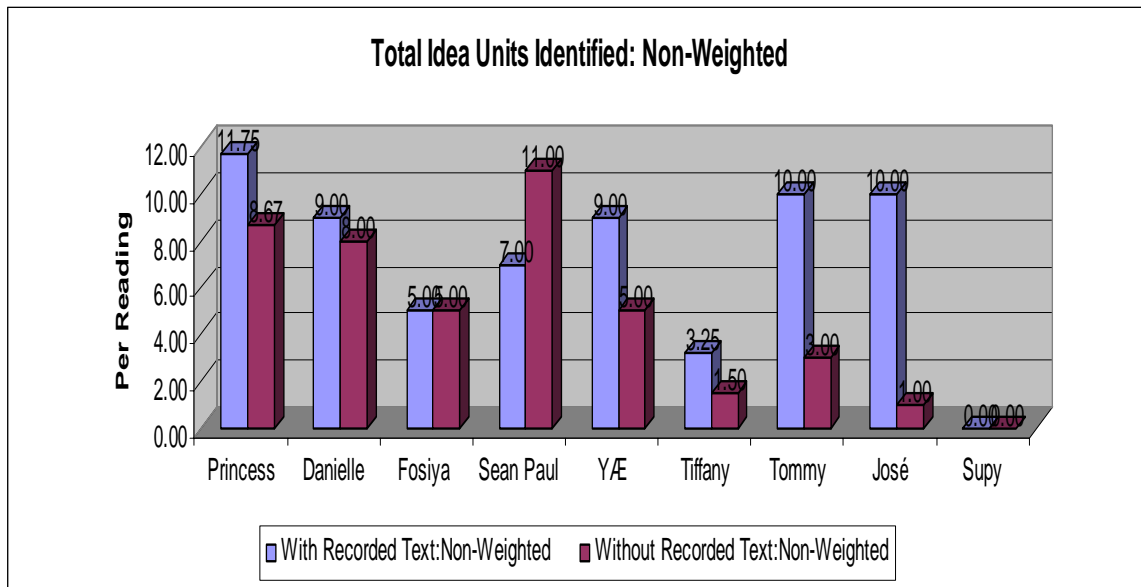
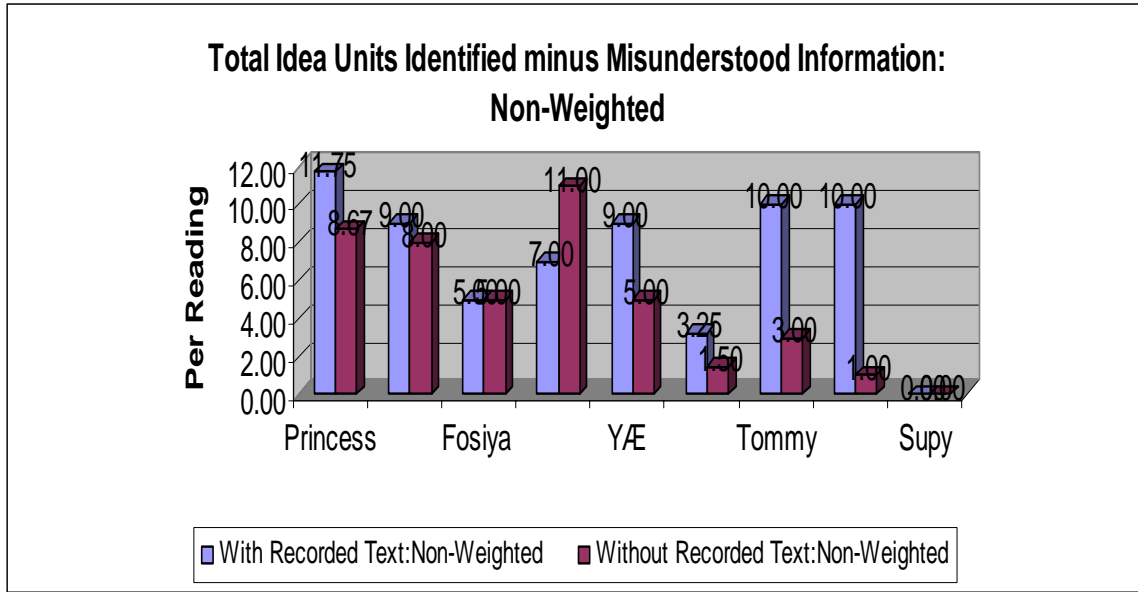


Figure 6B



The difference in these paired scores of the individual participants could be considered statistically significant as determined by the Paired Student's *t*-Test (Kirkman, n.d.). In this directional or one-tailed test, the critical value of *t* at a level of significance (α_1) of .05 for eight degrees of freedom – or nine participants – is 1.860. The calculated value of *t* for this data is 2.08, which surpasses the critical value as required to indicate statistical significance. However, the results also show a 95% confidence that the difference between means of the two groups of scores is somewhere between -0.2730 and 5.346. Because this interval includes “0”, it is not reasonable to accept the *t*-test result (Portney and Watkins, 2000). The inclusion of “0” suggests that the differences seen in the scores are more likely to be due to chance than due to the treatment. See Appendix H for the complete results.

Weighted Idea Units. This is the final look at the recall data, and this calculation considers some of the recalled information as more significant than others (Bernhardt,

1988). The types of information recalled are weighted as follows: main ideas of the readings (3); ideas supporting the main ideas (2); specific names, dates or details recalled in context of the main or supporting ideas (1). Misunderstood information is negatively weighted in correlation with the type of information misunderstood (-1 to -3). The result of this calculation of the data shows that all but one of the students identified equal or more amounts of information when reading along *with* the recorded texts. The individual scores are shown in Figures 7A & B.

Figure 7A

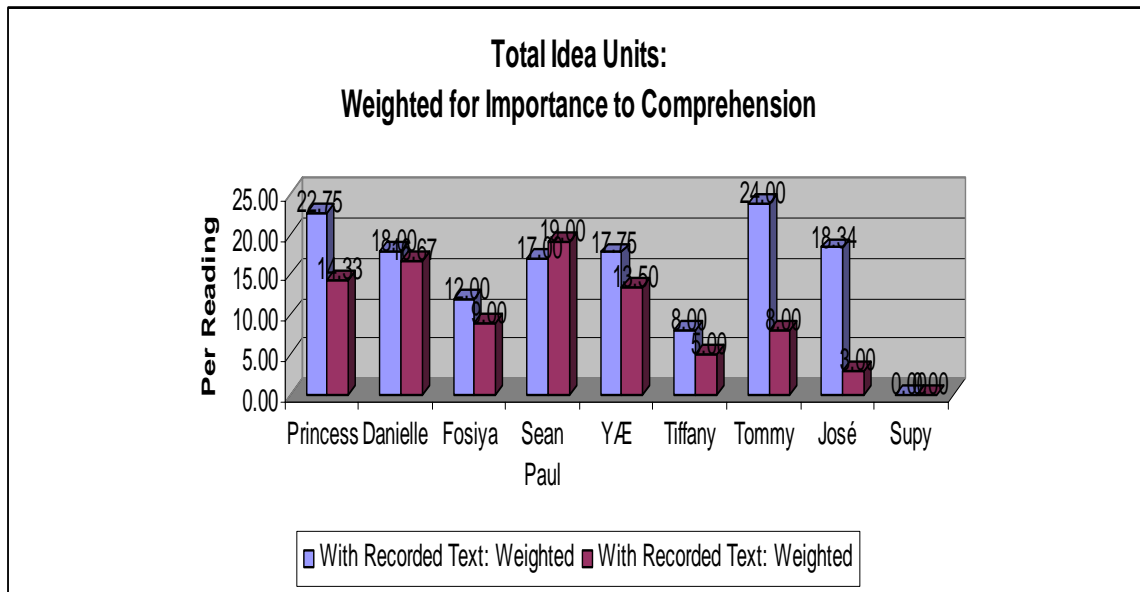
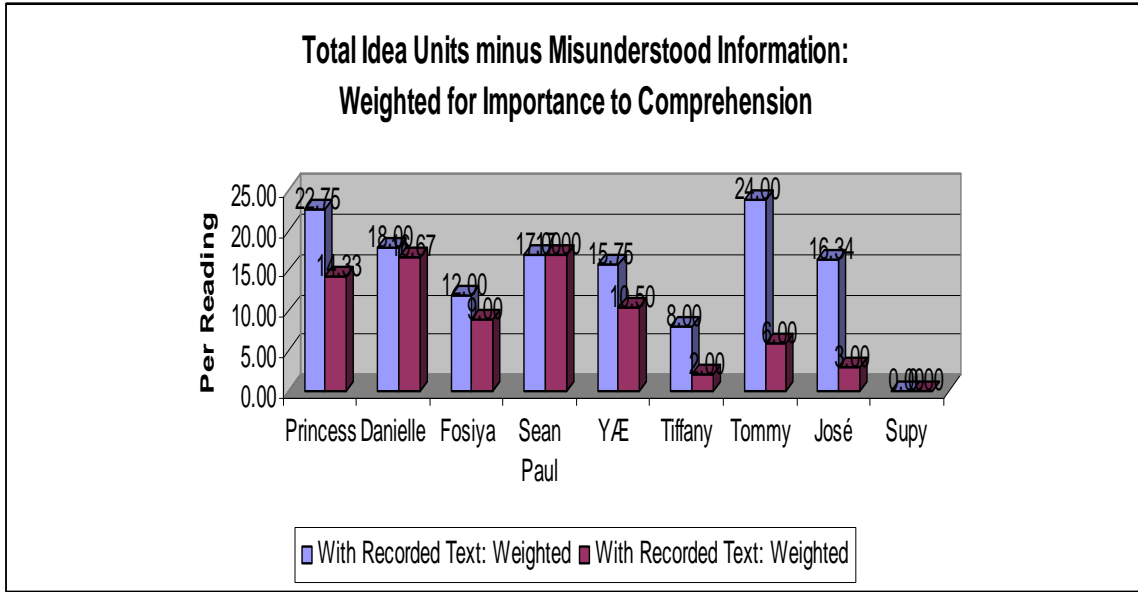


Figure 7B



A paired Student's *t*-Test shows that these weighted scores have a higher confidence level that the recorded text is helpful to students. It indicates that reading along *with* a recorded text is likely to improve recall if—as in this case—consideration is taken for the type of information the reader is able to recall. Once again, the critical value for *t* at a level of significance (α_1) of .05 for nine participants is 1.860. The results of the Paired Student's *t*-Test of this data show *t* at a higher level of 2.98 with a 95% confidence that the “true mean difference lies somewhere between” 1.388 and 10.91. Because the interval does not include 0, it is reasonable to accept the *t*-test result (Portney and Watkins, 2000) that there is a significant relationship between reading along *with* a recorded text and recalling more important information. See Appendix I for the complete statistical results.

The following line graphs are included in the results to give a clearer view of the differences in results for the two methods of reading when the misunderstood information

is subtracted out. In Figure 8A the line graph shows two instances of misunderstood information lowering the individual scores when reading *with* the recorded text. When the misunderstood information is subtracted out for reading *without* the recorded text, the line graph in Figure 8B shows four misunderstood ideas.

Figure 8A

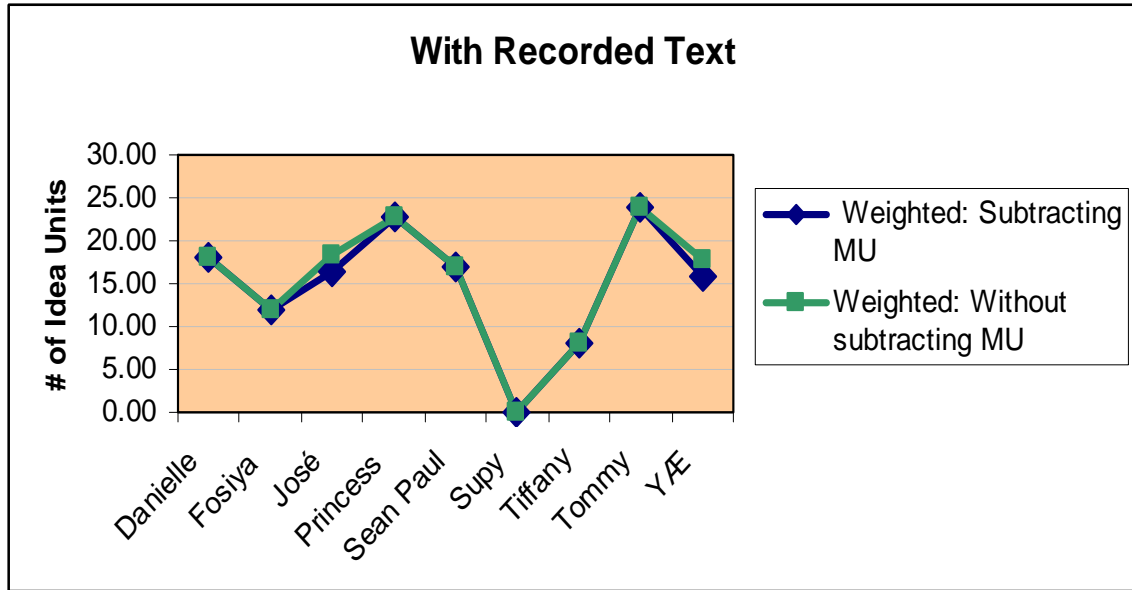
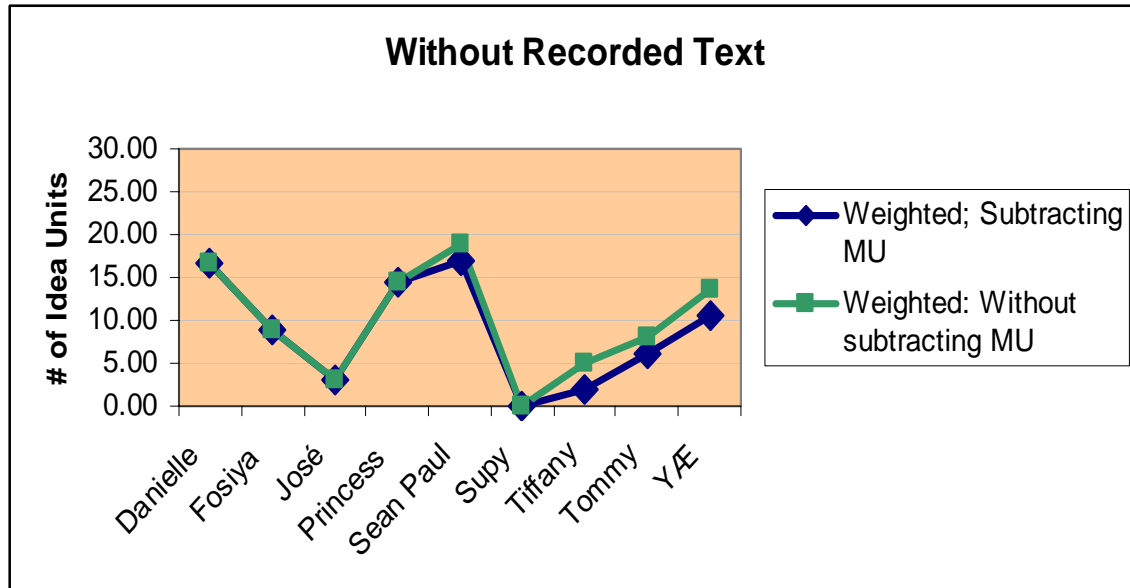


Figure 8B

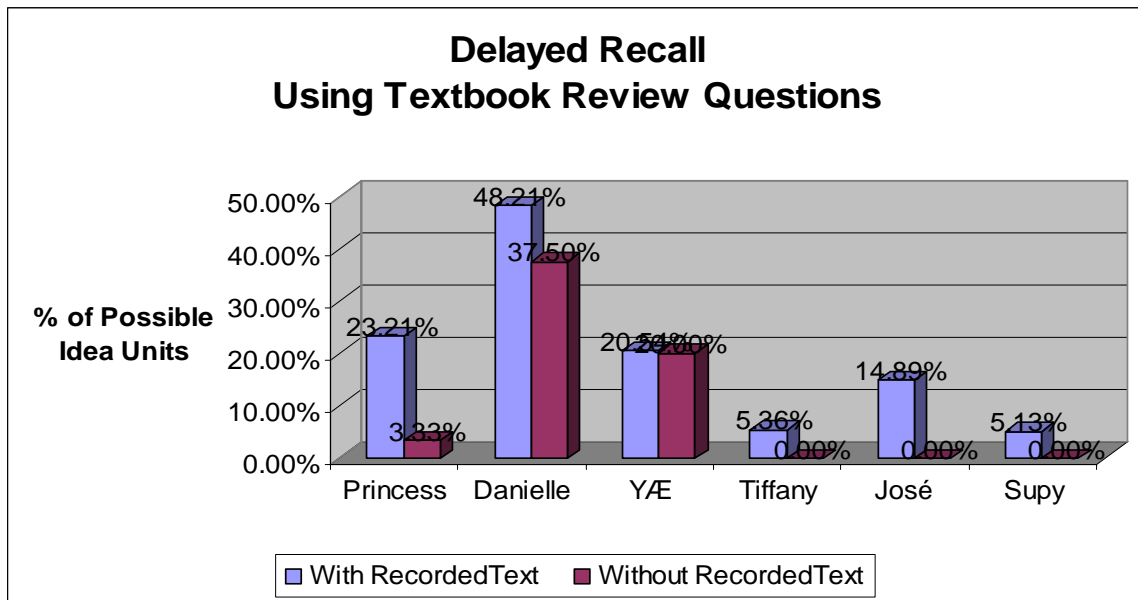


Delayed Recall: Using Textbook Review Questions

The participants were asked to answer textbook comprehension questions the day following each reading session. They had seen these questions the day prior to the reading as part of pre-reading activities, ensuring that they understood the topic and some of the key vocabulary for the next day's reading (Teach the Text Backwards, nd). This delayed recall gives an additional look at the depth of comprehension, or to see what information the students retained after a day had passed. To evaluate the written recall, an outline was made of the textbook information relating to the questions; each point on the outline was considered a possible idea unit. The total possible idea units for the reading sections ranged from nine to seventeen with the median score being fifteen. Only six of the nine participants are shown in Figure 9. The other participants were either absent or out of the classroom for an entire set of data: two did not answer any questions for the readings *without* recordings and one did not answer any questions when

listening to the recording. The data shows that overall the students recalled equal or more information if they had used the recording the previous day. The actual percentage of information recalled is generally quite low. This could be because the standard was set high, with all possible points found in the text used in the total possible for each reading. This is not to be compared to an authentic assignment, where students are able to use their books to answer comprehension questions following a reading assignment. The standard is high only to allow for all possible answers to be counted toward the students' scores. See Figure 9.

Figure 9



Participants' Perceptions

Eight of the nine participants indicated during the one-on-one interview following the study that the recordings helped them read the assigned text. The following participants

said that the CDs helped them understand the reading. These are their responses to the question “Why do you think the recordings helped?”

Fosyia: There is more understanding reading out loud.

José: I could just listen, pay attention. Plus my reading skill is really bad.

Princess: You can go back and re-listen to get more information

Tiffany: I hear the new words when I listen, then later I can read them.

Danielle: Sometimes: ...how to say the hard words

YÆ: I can follow the recording reading.

Participants who felt the recordings helped were asked if they would like to have a CD available for any other subject area. These are some of the responses:

José: Yes, English, Wellness, science textbook

Princess: Yes, Biology

Tiffany: Yes, science

Danielle: Yes, Biology

YÆ: Yes, Biology

The full results of this survey are found in Appendix K.

Some opinions were shared during the study. Tommy indicated at the beginning of the study that the recordings were too slow for him. Danielle said that she needs to read out loud by herself in order to remember information well. She was allowed to do the silent readings apart from the other participants after that, to allow her to read out loud if she

wanted. It may be important to survey students ahead of time to discover *how* they read before beginning a study such as this.

The students always seemed willing to do the recorded readings; one student in the class, who had elected not to participate in the study, sometimes chose to also do the listening. The participants were not always so happy to do the reading *without* the recording; an often heard comment was “*I’m too tired to read today.*” Those who generally have a harder time with reading were discouraged on some of those days. By the end of the study, one participant refused to do the reading *without* the recording. They were otherwise always cooperative, however, and seemed to need just a little encouragement to do their best on any given day. The group as a whole was supportive of the study.

Native Language Literacy Survey

The participants filled out a survey (Appendix L) that sought to discover their interest in reading, both in their native languages and in English. Following the study, the number of identified idea units and the survey answers were charted to look for any correlations. See these charts in Figures 10A and 10B. An explanation immediately follows.

Figure 10 A Native Lang Lit Survey

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Figure 10B

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These Native Language Literacy Survey charts also include the participants' 2003 English reading proficiency levels as determined by a state mandated test administered on an annual basis in the late fall to all ESL students, again, to look for any relationships to the amount of idea units identified. Levels can range from least proficient Level 1 to most proficient Level 5. There were two Level 1s, two Level 2s, four Level 3s and one Level 4r in this study.

The literacy charts in this section only indicate the positive responses given; those students who did not check *I enjoy reading*, for instance were able to check *I do not enjoy reading*. As it turned out, there were no students who were ambivalent about reading, so if the chart does not indicate that they enjoy reading, they DO NOT enjoy reading.

Correlation to English Proficiency Reading Levels

Figures 10A & B show a relationship between the participants' reading proficiency levels and the number of idea units they recalled. There is a difference in the results to be noted between the two methods. In the recorded text results, there are two interesting exceptions to the expected order of identified idea units: two participants with the lowest reading proficiency levels of one and two recalled the second and fourth highest number of idea units. In the case of one of those exceptions, the student has been identified with a reading disability and is receiving special educational help to improve reading proficiency. Both students have previously demonstrated an ability to remember detailed information when they have comprehended the material. The recording appears

to have given these two participants a chance to comprehend more than might be expected if one looked only at their reading proficiency levels. It is noted here that there is an advantage in doing classroom research, as some of the seeming discrepancies in data can often be explained by additional information available to the researcher from daily contact throughout the school year.

Correlation to Reading Enjoyment

To evaluate any relationship between reading enjoyment and the number of idea units identified, the charts in Figures 10A & 10 B were divided horizontally in order to show the median score. The idea was to look for categories where the higher scores also had most of the participants agreeing with the statement in the column heading. To attempt to make the evaluation more objective, the check marks, indicating agreement with the column heading, were given numerical values. The values, one to nine, were matched with the highest to lowest scores: one could think of it as the highest number of recalled ideas was in first place and the lowest in ninth place. The mean of each column was then calculated, with a lower mean indicating a stronger relationship between the sentiment and the ability to recall information.

When using the recorded text, the weighted data (Figure 10B) seems to show a relationship between higher recall numbers and the participants who agreed with the following statements:

Today I like to read in my native language;

In the United States, I read in my native language for fun and enjoyment.

These two categories had means of 3.4 and 3.6.

When reading *without* the recorded text, there were more categories with similarly strong relationships. Six categories had similar means:

1) *Today I like to read (3);*

2) *Today I like to read in my native language (3.4);*

3) *Today I like to read in English (3.6);*

4) *In my native country, I liked to read in my native language (3.8);*

5) *In my native country, I read (past tense) in my native language for fun
and enjoyment (3.6);*

6) *In the United States, I read (present tense) in my native language for fun
and enjoyment (3.4).*

The non-weighted data (Figure 10A) shows a similar picture. The literacy survey appears to show that the recorded text can be useful to students who are less enamored with reading. This could be a resource for leveling the playing field for reluctant readers.

Additional comments were encouraged at the end of the Native Language Literacy Survey. Some of the participants chose to explain their negative responses. A few of the responses are listed below.

“I can read better in English [because] I didn’t go to school in my native country.”

“The only reason I don’t like to read is because it’s hard to me.”

“I don’t read a lot in my native language because I don’t have time!”

“My native language is confusing and I forgot most of my reading skill.”

CHAPTER FIVE: DISCUSSION

The data generated by this study indicates the real possibility that many ESL students can be helped in their mainstream American history classes if they could read along *with* a recorded text. In general, the participants in this study were able to recall more information after they had read along *with* the recorded texts. Participants particularly recalled more supporting ideas and main ideas, which is the kind of information that helps students be more prepared to participate in class discussions and activities and provides a foundation upon which students would then be able to fill in more detailed information.

However, it is important to note the data regarding the higher percentages of recalled main ideas and supporting ideas for some of the participants when reading *without* the recordings, or at their own pace (see Figure 2). Participants read at a slower pace, as indicated by the fact that they did not finish the readings, all of which were of similar size. This suggests that, as always, there are times when a single method is not the best for every situation. Students could be encouraged to read along *with* a recorded text for initial reading assignments, when more information is being introduced. But when the student is preparing to use the material for an assessment, they should be encouraged to read the important sections at their own pace, in order to be able to recall a higher percentage of the material.

In looking at the correlations observed in the native language survey, it appears that the addition of the recorded text is useful to a larger range of readers. Those who recalled more information when reading *without* the recorded text were also the ones more likely to report that they *enjoy reading*. However, when reading *with* the recorded text, the tie to enjoyment of reading is not as strong. There were even two participants who reported *not enjoying reading* who were among the highest in the actual number of recalled ideas when reading along *with* a recorded text (see Figures 10A and 10B). Using the recordings may level the playing field, for those who don't enjoy reading.

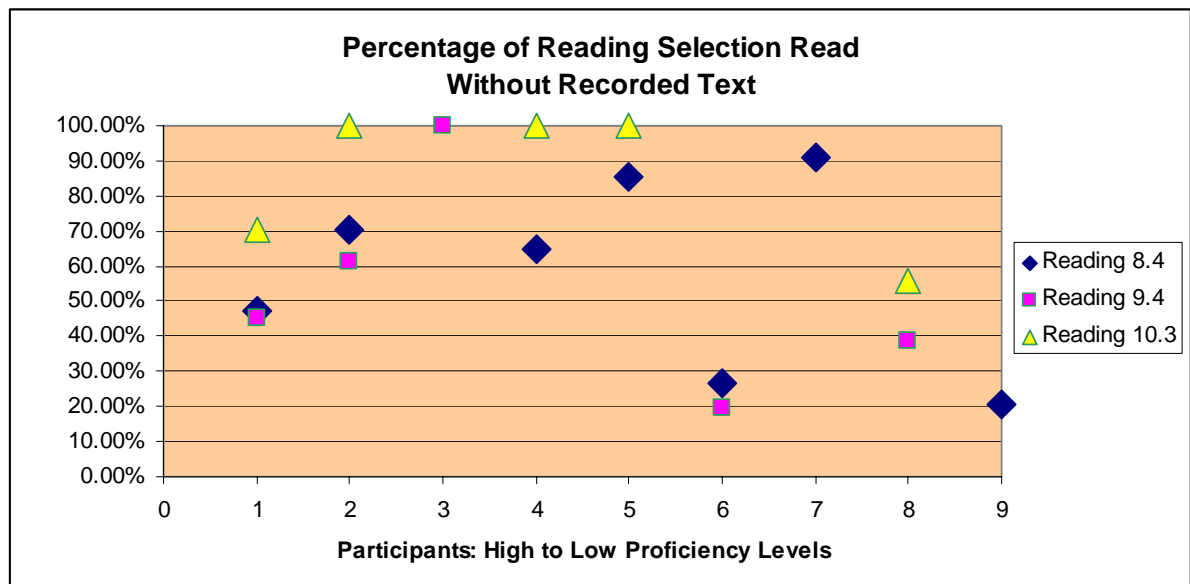
Between the Native Language Literacy Survey and the Participants' Perceptions Survey, I had hoped to discover whether there were any proficiency levels that were more likely to be aided by reading along *with* a recorded text. Prior to the study, I would have said that students *with* higher reading proficiencies would be less likely to be helped by the recording and would perhaps find it an obstacle; for instance, the better readers would find the readings too slow. One student did report the recording was too slow, but it was a Level 2 reader. The one participant who did not seem to be helped in any way was a regular education Level 1 English reader, so perhaps reading along *with* a recorded text is not helpful until the reader reaches a working reading proficiency level. Overall, participants at all the reading proficiency levels found in the study were aided by the recordings. Since the study did not include a Level 5 reader, it is not known here how reading along *with* a recording would affect the highest proficiency reader.

The recall protocol used immediately following the readings was a good method, but care should be taken in making sure the participants know how the information will be

evaluated. In an effort to jump start some participants who were looking blankly at their papers, the researcher encouraged them to write anything, even a single key word. This was fine in most cases, but one particular participant took it to the extreme and simply wrote a list of key words for one of the recalls. This of course, lowered the overall average for this individual. The delayed recall felt less successful, as sometimes students seemed to give up without really trying (see Appendix J). This is a bit of a mystery, because the questions were always a part of the pre-reading activities the day prior to the reading, when the questions were clarified and students were encouraged to think about what sort of information they might encounter in the chapter in light of those questions. But this indicates the need for further strategies, other than simply reading along *with* a recorded text. A more realistic scenario would likely allow the students to look back at the material to find the needed information to answer the questions for an assignment. However, it was hoped that this form of evaluation would provide an additional sense of the depth of comprehension.

Most notable in the results was the fact that while the participants were recalling more ideas when reading along *with* the recordings, they were also able to complete the approximately four page assignments in less time. Students have many reading assignments and projects to do throughout their high school years. Strong, et al, (2002), stated that ESL students can require up to twice the amount of time as a native-speaking peer to read any given assignment. Figure 11 shows a similar result occurred in this study. By itself, being able to complete reading assignments in a reasonable amount of time is a valuable asset to busy high school students.

Figure 11

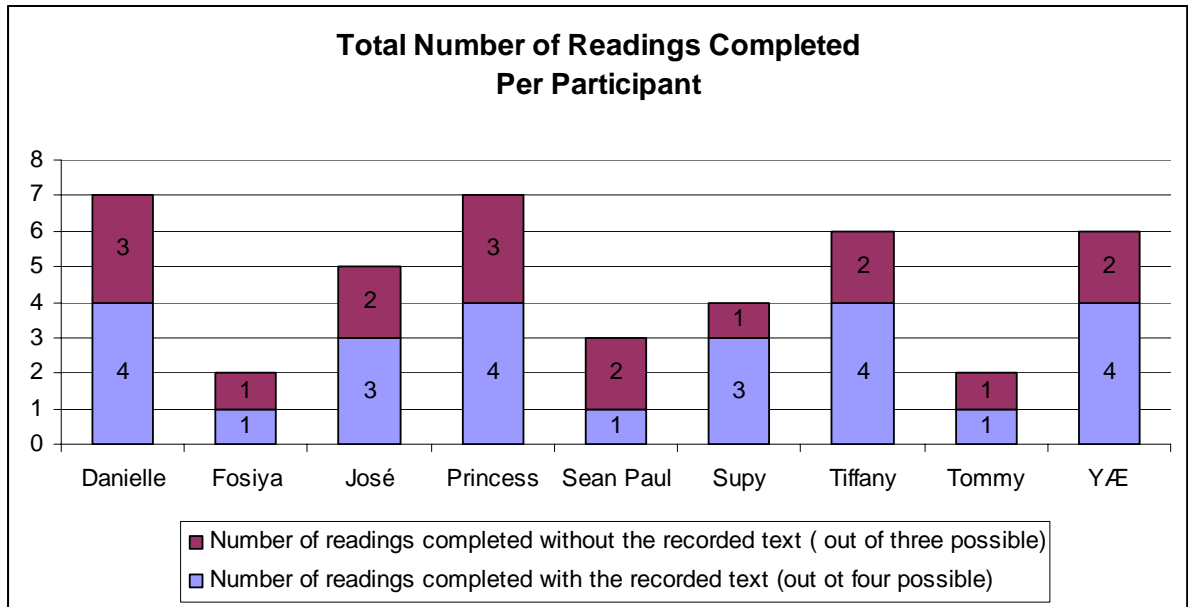


The study was a small one, with nine participants reading seven, approximately four-page sections. This was reduction from the original plan. There were originally ten participants but one was only available to do the readings *with* the recordings and never did any readings *without* the recording; since those results could not be compared, those results were omitted from the reported results. It was also planned to do ten readings, but that was reduced to eight due to school schedules. Then as the study was coming to an end, one more reading was omitted. This decision was made after one family unexpectedly moved, taking several of the participants *with* them.

There was a concern as to how to report the results in light of several absences of several of the participants. Only three of the participants did all seven of the readings, and one of those had one reading recall disqualified. It was difficult to recreate the atmosphere for the readings when only one or two participants needed to make them up, so it was rare if

a reading was completed outside of the scheduled time. Thus there was the need to use an average number of idea units per reading instead of just adding up the number of idea units identified. The data is likely less accurate because of this, due to the varying number of samples per participant. See Figure 12.

Figure 12



Further Research

In spite of its limitations, the study does indicate some real possibilities for the usefulness of reading *with* a recorded text. There are some possibilities for further research, other than those mentioned earlier.

First, the participants indicated an unexpectedly unanimous request for recorded texts for their science classes in the follow-up survey. This would be an important area in which to do a follow up study. Students indicated that the recordings helped with the “hard words,” so they may be looking for help with the science vocabulary. This study indicates that the recording is more helpful overall in identifying main ideas and supporting information than detailed information, so it would be interesting to know if that would hold true for science textbook reading assignments.

Secondly, because the participants recalled a higher percentage of the material read *without* the recording, does this study indicate that students would actually remember more if they were given the time to read on their own, at their own pace? Further research could discover if students do recall more if allowed the time to finish the reading at their own pace: the question being, does the extra time needed to finish a reading affect their recall ability? Would the extra time contribute to or be a negative affect on recall? One of the precipitating reasons to pursue this study was to reduce the amount of time ESL students need to read assignments. I believe it does show some promise to that effect; however, if a study would show that ESL readers, in the end, simply need to be given more time to learn the same amount as a native-speaker, that would be a valuable information to disseminate to mainstream teachers who struggle to help their ESL students.

Conclusion

Today in 2004 there is a national debate, spurred on by the No Child Left Behind Act, as to how to best serve all students, but especially those who struggle to learn, for whatever reason. English language learners are one of the groups of concern. Our local news media has reported the real possibility of thousands of Hmong leaving Thai refugee camps in the summer of 2004 and relocating in our area. Among those immigrants will be many teenagers. These young people and other ESL students who arrive in their middle school/junior high and high school years face more pressure than their younger siblings to succeed in their classes. They have only a short time before their native English-speaking counterparts will move on to college and the work world, where of course, many ESL students will also want to go. This study was motivated by a desire to find a way to assist these hard-working students with mainstream assignments outside the ESL classroom. Being able to read more on their own at home, with greater comprehension, would allow them to take advantage of more educational opportunities. Hopefully the current national and local interest in the English Language Learners will spur the community to make it a priority to obtain the variety of resources-including recorded texts-which are needed by the ESL students to fully realize their academic potentials.

APPENDICES

Recall Protocol of Textbook Reading Without a Recorded Text

Student: *Fill in the following reading assignment information:*

1. Your "Alias" _____

2. Date _____

3. *Write down exactly HOW much you read. Include the page numbers and describe where you ended on the page (for instance, which paragraph or which section or write the last four words you read.)* _____

4. *What do you remember about the reading today? Write AS MUCH as you can remember. You may write in your native language or in English.*

women produced most of the articles that families needed, such as clothing, soap, candles, dairy products, and preserved foods. Wrote homesteader Mary Henderson of Oklahoma of her work on a single day, "I made sausage, rendered lard, molded 4 lbs. butter, halfsoled 3 pairs of shoes, and tonight had to iron [daughter] Agnes a dress."

Settlers relied heavily on each other as they built new communities from the ground up. Families cooperated in raising houses and barns, sewing quilts, husking corn, and providing many other forms of support. "Occasionally a new comer has a 'bee,'" noted Howard Ruede about his experience on a Kansas homestead in 1877,

The neighbors for miles around gather at his claim and put up his house in a day. Of course there is no charge for labor in such cases. The women come too, and while the men lay up the sod walls, they prepare dinner for the crowd, and have a very sociable hour at noon.

MAKING CONNECTIONS

You have read about the cooperation among homesteaders in the West. Can you identify and describe similar examples of cooperation in your community today?

A Frontier for Women

Although most homesteaders went West as families, women were able to file claims on their own. Homesteading alone—whether by a

man or a woman—was an enormous challenge. Some people, however, such as Wyoming settler Elinore Pruitt Stewart, saw great benefits in the challenge.

It really requires less strength and labor to raise plenty to satisfy a large family than it does to go out to wash, with the added satisfaction of knowing that their job will not be lost to them if they care to keep it. . . . Whatever is raised is the homesteader's own, and there is no house-rent to pay.
Letters of a Woman Homesteader, 1909

Even for those women who were married, the requirements for getting land through homesteading—continuous residence on a claim for five years—often meant long periods of solitude. Such lonely experiences increased western women's eagerness for opportunities outside the home. Some western women campaigned to improve women's professional opportunities, in areas such as business, medicine, and law.

Western women launched successful city and state campaigns for the vote. In 1887 two Kansas towns, Syracuse and Argonia, passed woman suffrage. Syracuse then elected an all-female town council, and Argonia the nation's first female mayor. By 1914, women were voting in eleven states, all but one of which (Illinois) were west of the Mississippi.

For American settlers in the West, hard work was a small price to pay for the opportunity to build a new future. The homesteaders' opportunity, however, represented a threat to Native Americans there.

SECTION 1 REVIEW

Key Terms, People, and Places

1. Describe speculators.
2. Identify (a) Morrill Land-Grant Act, (b) Homestead Act, (c) Exodusters.

Key Concepts

3. What group controlled most of the land in the West?
4. How did Americans acquire lands in the West?

5. Describe some of the hardships homesteaders endured.

Critical Thinking

6. Distinguishing False from Accurate Images In your opinion, was the West a land of opportunity? Cite information from the section to support your answer.

3 - MI

6 - SD

Appendix D

Data about the Individual Readings Used in the Study

Reading Times for Recorded Readings

Reading	Length of Reading (minutes)
Chapter 8, Section 3	13:07
Chapter 9, Section 1	13:46
Chapter 9, Section 2	13:54
Chapter 9, Section 5	15:18
Average Amount of Time Per Reading	13:81

Number of Words per Reading

Three readings were counted-8.4, 9.2 and 10.3. It was determined that they contained an average of seven words per line and an average of 1311 words.

Reading	Length of Reading (words)
Chapter 8, Section 3	
Chapter 8, Section 4	1351
Chapter 9, Section 1	
Chapter 9, Section 2	1364
Chapter 9, Section 4	
Chapter 9, Section 5	
Chapter 10, Section 3	1218
Average Number of Words Per Reading	1311

Delayed Recall: Number of Idea Units Possible for Comprehension Questions

Reading	Idea Units
Chapter 8, Section 3	9
Chapter 8, Section 4	14
Chapter 9, Section 1	17
Chapter 9, Section 2	15
Chapter 9, Section 4	12
Chapter 9, Section 5	15
Chapter 10, Section 3	16
Mean Score	15

Appendix E

Data Totals: Immediate Recall

(This page is not available in an electronic form)

Appendix F

Data for readings with Recorded Text

(This page is not available in an electronic form)

Appendix G

Data for Readings: without recorded text

(This page is not available in an electronic form)

Appendix H

Paired Student's t-Test: Results*

Evaluating the data from Appendix E: Total Number of Idea Units Identified minus Misunderstood Information: Non-Weighted

The results of a paired t-test performed at 12:06 on 10-MAR-2004

$t = 2.08$ This t value indicates statistical significance because it is larger than 1.860, the critical value of t at $\alpha_1 = .05$ for 8 degrees of freedom (or nine subjects).**
degrees of freedom = 8 This is the number of participants minus one.

The probability of this result, assuming the null hypothesis, is 0.071 018 (7.1% of the time a difference this large could occur even if there is no statistical significance [the null hypothesis.] This may be too high a risk to take.)

Group A: Number of items= 9 Participant scores: *with* the recorded text (see Figure 6)
0.000E+00 3.25 5.00 7.00 8.00 9.00 9.00 10.0 11.8

Mean = 7.00
95% confidence interval for Mean: 4.181 thru 9.819
Standard Deviation = 3.67
Hi = 11.8 Low = 0.000E+00
Median = 8.00
Average Absolute Deviation from Median = 2.72

Group B: Number of items= 9 Participant scores: *without* the recorded text (see Figure 6)
0.000E+00 1.00 1.00 2.00 4.50 5.00 8.00 8.67 10.0

Mean = 4.46
95% confidence interval for Mean: 1.598 thru 7.328
Standard Deviation = 3.73
Hi = 10.0 Low = 0.000E+00
Median = 4.50
Average Absolute Deviation from Median = 3.07

Group A-B: Number of items= 9
-3.00 0.000E+00 0.000E+00 1.00 2.25 3.08 3.50 8.00 8.00

Mean = 2.54

95% confidence interval for Mean: -0.2730 thru 5.346 ******(There is a 95 % chance that this interval includes the true mean difference for the data obtained in the study. Since the interval for the mean includes 0, [0 would mean no effect is obtained by the treatment], it is not reasonable to accept the results of the t-test as statistically significant)

Standard Deviation = 3.66

Hi = 8.00 Low = -3.00

Median = 2.25

Average Absolute Deviation from Median = 2.73

*NOTES:

- This paired-Student's *t*-Test calculator was found at http://www.physics.csbsju.edu/cgi-bin/stats/Paired_t-test (Kirkman, n.d.)
- Everything written in red was added by the researcher to help explain the statistics (Portney and Watkins, 2000).
- Everything in black is taken from the above website.
- See the data used for this calculation on the following page, Appendix F.

Appendix I

Paired Student's t-Test: Results*

Evaluating the highlighted data from APPENDIX E: Total # of Idea Units Identified [minus Misunderstood Information] With and Without Recorded Text: Weighted [for Importance to Comprehension]

The results of a paired t-test performed at 21:02 on 9-MAR-2004

$t = 2.98$ This t value indicates statistical significance because it is larger than 1.860, the critical value of t at $\alpha_1 = .05$ for 8 degrees of freedom (or nine subjects

degrees of freedom = 8 This is the number of participants minus one.

The probability of this result, assuming the null hypothesis, is 0.018 (1.8% of the time a difference this large could occur even if there is no statistical significance [the null hypothesis.] This is a reasonable risk to take.)

Group A: Number of items= 9 Participant scores: *with* the recorded text (see Appendix F)

0.000E+00 8.00 12.0 15.8 16.3 17.0 18.0 22.8 24.0

Mean = 14.9

95% confidence interval for Mean: 9.175 thru 20.57

Standard Deviation = 7.41

Hi = 24.0 Low = 0.000E+00

Median = 16.3

Average Absolute Deviation from Median = 5.11

Group B: Number of items= 9 Participant scores: *without* the recorded text (see Appendix F)

0.000E+00 2.00 3.00 6.00 9.00 10.5 14.3 16.7 17.0

Mean = 8.72

95% confidence interval for Mean: 3.802 thru 13.64

Standard Deviation = 6.40

Hi = 17.0 Low = 0.000E+00

Median = 9.00

Average Absolute Deviation from Median = 5.28

Group A-B: Number of items= 9

0.000E+00 0.000E+00 1.33 3.00 5.25 6.00 8.42 13.3 18.0

Mean = 6.15

95% confidence interval for Mean: 1.388 thru 10.91 (There is a 95% chance that this interval includes the true mean difference for the data obtained in the study. Since the interval for the mean does not include 0 [0 would mean no effect is obtained by the treatment] it is reasonable to reject the null hypothesis.)

Standard Deviation = 6.19

Hi = 18.0 Low = 0.000E+00

Median = 5.25

Average Absolute Deviation from Median = 4.60

*NOTES:

- This paired-Student's t -Test calculator was found at
http://www.physics.csbsju.edu/cgi-bin/stats/Paired_t-test
- Everything in blue was added by the researcher to help explain the statistics
(Portney and Watkins, 2000).
- Everything in black is taken from the above website.
- See the data used for this calculation in Appendix F.

Appendix J
Delayed Recall

(This page is not available in an electronic form)

Appendix K

Students' Perceptions

Name (alias) _____

1. Does the audiotape make it EASIER TO UNDERSTAND what you are reading?
YES _____. Would you share with me why you say that?

Fosyia: There is more understanding reading out loud.

José: I could just listen, pay attention. Plus my reading skill is really bad.

Princess: You can go back and re-listen to get more information

Tiffany: I hear the new words when I listen, then later I can read them.

Danielle: Sometimes: ...how to say the hard words

YÆ: Yes: I can follow the recording reading.

NO _____.

Tommy: It was too slow.

Does it make it more difficult to understand or is there NO difference?

- NO DIFFERENCE _____
- MORE DIFFICULT _____. Would you share with me why you say that?

2. Do you feel you REMEMBER MORE after you use the recordings while you read?
YES _____. What could be the reason for that?

Fosyia: Yes

José: Yes

Princess: Yes, I can write more information when finished.

Tiffany: Yes, I listen then read back.

Danielle: Sometimes because you listen to it; it helps you remember.

YÆ: Yes, I think so. It's not going too fast, so I can remember it easily.

NO _____. Do you feel you remember less when you use the recording or is there
NO difference?

NO DIFFERENCE _____

REMEMBER LESS _____. What could be the reason for that?

3. Can you READ FOR A LONGER PERIOD of time when you use the audio recording
YES _____. What do you feel is the reason for that?

Fosyia: Yes
José: Yes
Princess: Yes I read slowly.
Tiffany: Yes
YÆ: Yes, I think so.

NO ____ Does it feel that you read for a shorter amount of time or is there NO difference?

Danielle: No

- NO DIFFERENCE ____
- SHORTER PERIOD ____ . What could be the reason for that?

4. If you had a choice would you WANT TO CONTINUE USING the recordings for your history assignments after this study?

YES ____ . What is your main reason for wanting to continue?

José: Yes, so I can understand more and learn more.
Princess: Yes, it is easier.
Tiffany: Yes
Danielle: Yes-help with hard words

NO ____ . What is your main reason for NOT WANTING TO CONTINUE?

YÆ: No, because I can read it by myself and understand the word.

5. Would recordings be HELPFUL FOR ANY OTHER SUBJECT?

YES ____ . For which subjects would a recording be helpful?

José: Yes, English, Wellness, science textbook
Princess: Yes, Biology
Tiffany: Yes, science
Danielle: Yes, Biology
YÆ: Yes, Biology

NO ____ .

6. Do you think it is better to read and listen at the same time or WOULD YOU PREFER TO JUST LISTEN?

José: Read and listen. If you just listen, you fall asleep. If you read and listen, it is easier to get into it.

Princess: Read and listen

Tiffany: Both

Danielle: Read and listen

YÆ: I think it's better, reading and listening

7. WHAT ELSE WOULD YOU LIKE TO TELL ME about your experience with using recordings while you read your history textbook?

Danielle: I read better by myself. I need to read out loud to remember things.

Appendix L

NATIVE LANGUAGE LITERACY SURVEY

Date _____

Alias _____

Age _____

What is the name of your native country? _____

What language did you first learn to speak? _____

What language did you first learn to read? _____

How old were you when you first learned to read? _____

Name any other language(s) that you read, besides your native language and English. _____

Mark TRUE for all of the following statements that are true for you.

Mark FALSE for all of the statements that are not true for you.

Today, ...	I like to read.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
	I like to read in my native language.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
	I like to read in English.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
	I don't like to read.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
	I don't like to read in my native language.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
	I don't like to read in English.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE

In my native country, ...

I <u>liked</u> to read in my native language.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
I read <u>a lot</u> in my native language.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
I read in my native language for <u>fun and enjoyment</u> .	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
I read in my native language for <u>school</u>	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
I only read in my native language if I <u>had to</u> read.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
I didn't read very well in my native language.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
I read well in my native language.	<input type="checkbox"/> TRUE	<input type="checkbox"/> FALSE

In the United States ...

- I still read in my native language. TRUE FALSE
- I read a lot in my native language. TRUE FALSE
- I do not read a lot in my native language. TRUE FALSE
- I read in my native language for fun and enjoyment. TRUE FALSE
- I read in my native language for school. TRUE FALSE
- I only read in my native language when I have to read. TRUE FALSE

WRITE ANY OTHER THOUGHTS YOU HAVE ABOUT READING, EITHER IN YOUR NATIVE LANGUAGE OR IN ENGLISH.

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