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A Comparison of Adolescents' Digital and Print Reading Experiences: Does Mode Matter?

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A COMPARISON OF ADOLESCENTS' DIGITAL AND PRINT READING
EXPERIENCES: DOES MODE MATTER?

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ABSTRACT

The purpose of this mixed-methods research study was to investigate the comprehension and motivation of 36, sixth-grade students reading moderately challenging text under two conditions: Nook or book. Using a Sequential Explanatory Design model, quantitative data were collected prior to qualitative data collection (Creswell & Plano Clark, 2011). A Matched Pairs Design model (Hinkle, Wiersma, & Jurs, 2003) was employed for the quantitative portion of the study with 18 participants randomly assigned to the Nook group and 18 participants randomly assigned to the book group. Nook group participants were instructed to use the following electronic features during reading: highlighting, note taking, and dictionary usage. The book group participants received instruction for using actual highlighters, sticky notes, and dictionaries during reading. Participants read and responded to *Sounder* (Armstrong, 1969) in either a traditional or digital (Nook) format. Quantitative data included scores on a reading motivation survey and summative comprehension test. Qualitative data included students' journal entries, researcher's field notes, and participants' verbal responses to interview questions. Results indicate the Nook group achieved higher overall comprehension scores with statistically significant higher inferential comprehension scores than the book group. Nook group participants also read approximately 3 minutes longer per day, chose a free-write response option (as opposed to responding to researcher-constructed writing prompts), and cited text more frequently in journal responses than book group participants. Findings suggest that engaging students in

reading digital text and teaching them to use the technology's facilitative features has the

potential to improve student's reading comprehension of moderately challenging text.

Keywords: digital reading, comprehension, motivation, new literacies

DEDICATION

I dedicate this research study to my family, teachers, and students. They influenced, inspired, and encouraged me to create a better world through inquiry. I would especially like to thank my husband, Ian, and daughters, Chloe and Lily. They gave purpose and meaning to the years of hard work. It was all worth it to see their warm faces excitedly removing piles of notes, articles, and my trusty computer from the kitchen table and set it for dinner.

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TABLE OF CONTENTS

Page

Table of Contents (Continued)

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

GENERAL INTRODUCTION

We hold too exclusively to the technology touchstone of our world—the book. We

need to recognize that the essence of reading, writing, and communication has expanded.

(Leu, 2000)

Motivating students to read is a challenge encountered by teachers of adolescents.

Teachers of these students are constantly looking for any method that sparks students'

interest in reading. As educators in an increasingly digital age, it is important to explore

the potential benefits of technology in learning and instruction. This research study is

designed as a mixed methods investigation of how sixth-grade readers comprehend

moderately challenging text while reading from two different text modalities: ereaders

and books.

Students who can successfully read moderately challenging texts, where the

reading task is "slightly beyond ability," experience engagement and enjoyment of the

reading process on a deeper level, which can foster motivation (Fulmer & Frijters, 2011,

p. 186; Pintrich & Schunk, 2002). In this study, a mixed methods Sequential Explanatory

Design was used to better understand the relationship between comprehending

moderately challenging text, motivation, and the potential buffering effects of digital text

(i.e., highlighting, note taking, and dictionary usage).

In my own experience as a ninth-grade English teacher, I had first-hand

knowledge of the motivating power of technology. An experience with one of my

students, described in the vignette below, illustrates the potential for technology to change student attitudes about reading.

Will (pseudonym) was a student who was disengaged and not interested in reading. As a teacher, I explored his interests to help find suitable and interesting text, held parent-teacher conferences, asked the librarian for suggestions, and had many discussions with Will about his interests. Nothing worked.

However, Will became interested and even glued to his Kindle after his father purchased it for him for Christmas that year. Prior to that, my interactions with Will involved trying to find books he would like and find interesting, not to mention the several parent-teacher conferences held to help Will become a better reader and improve his grades. After the winter break, Will needed no help. He read voraciously. He even shared his extensive digital library with me. He loved his ereader and when offered the chance to meld technology with reading, Will became engaged.

Although Will is just one young man, his story is emblematic of many students who struggle to read. He could read, but was disengaged or alliterate (Alvermann, 2004). When Will became more engaged, he read more. If students read more, they become better readers (Anderson, Wilson, & Fielding, 1988; Cunningham & Stanovich, 1991; Gambrell, Marinak, Brooker, & McCrea-Andrews, 2011; Guthrie, 2004). This personal experience is what spurred my interest to study how and to what extent digital text might impact student learning and literacy engagement.

Significance of the Study

Adolescent literacy is a vital focus for researchers, policy makers, educators, and parents/guardians because of the link between early literacy success and adult literacy achievement. According to a recent Policy Brief by The National Council of Teachers of English (NCTE, 2007), the United States' "share of global college-educated workforce has fallen from 30% to 14% in recent decades as young workers in developing nations demonstrate employer-satisfying proficiency in literacy" or the ability to function and/or excel at work (p. 2). This decline, coupled with No Child Left Behind (NCLB) legislation calling for more support in adolescents' literacy learning (Conley & Hinchman, 2011), has led to strong public interest and outcry regarding effective, research-based literacy practices.

In keeping with the Common Core State Standards (CCSS, 2012) regarding student ability to read increasingly challenging text, this study incorporated moderately challenging text into the design. According to the CCSS (2012), the demands of reading for college-level courses, workforce training, and life skills have increased over the last 50 years; rigor in academic texts for students in grades K-12 has declined (Hayes, Wolfer, & Wolfe, 1996). Although college level text difficulty has increased since the early 1960s, "text difficulty in elementary through high school has decreased" (Williamson, Fitzgerald, & Stenner, 2013, pp. 60-61). Consequently, this lapse has left many high school students ill-prepared for the literacy requirements of higher education.

The goal of reading is comprehension, and the Common Core State Standards (2012) call for an increase in challenging text read by k-12 students. In order to

comprehend more challenging texts, students are challenged to refer to what they have read in the text, which stresses analytical and problem-solving skills (CCSS, 2012). In the National Reading Panel Report (NRP, 2000), researchers stated that reading comprehensions skills "are based on the technology of writing and printing" (p. 6-3). The NRP report's use of the word technology, couched in terms of writing and printing, is revealing. In a technological world, reading and writing are still important. Although traditional literacy skills will continue to be both taught and learned, students must be exposed to new literacies, using digital strategies to navigate and comprehend information sources, so they will be prepared to be successful in this millennium (Henry, Coiro, & Castek, 2005). The buffering effects (i.e., the immediate access to a dictionary) of technology's supportive features may help students navigate 21st century digital texts more fully because these facilitative features produce immediate results. Students no longer have to leave the text to utilize functions such as the highlighting feature. In this research study, the facilitative features of digital devices are the driving force in understanding how students comprehend challenging text.

According to McKenna, Kear, and Ellsworth (1995), student motivation to engage in academic reading declines as they progress through grades 1-6. This trend in declining motivation has the potential to negatively affect sixth-grade students as they enter into a new, potentially more challenging, middle school environment. The goal of reading is to comprehend the text; in other words, to make meaning from text (Hulme & Snowling, 2011). As text complexity increases for students, comprehension ability must increase as

well, and engaging students is crucial. According to Guthrie (2004), "engaged readers spend 500% more time reading than disengaged students" (p. 1).

Research involving the investigation of students' reading comprehension and motivation while reading from ereaders and books has the potential to shed light on the possible benefits afforded by digital features such as the highlighting, note taking, and dictionary. The immediate access of the facilitative features of digital devices that allow students to stay engaged with the text, but also answer challenging questions and take notes, may support the comprehension process.

Introduction

When students read and write on digital devices, potential concerns arise for parents and educators. These concerns essentially occur when students disregard the conventions of writing for in-school tasks. For example, spelling becomes a concern because students tend to use text language, instead of standard English.

Some adolescents, who perform poorly in academic environments, are knowledgeable and confident readers and writers in out-of-school media environments (Alvermann, 2002) and they extend school-literacy practices in online conversations (Berg, 2011). More research is needed to clarify potential problems and possible benefits (Larson, 2009; Schugar, Schugar, & Penny, 2011) associated with adolescents' use of technology for reading.

Purpose of Study

The purpose of this study was to investigate sixth-grade students' reading comprehension and motivation while reading moderately challenging text under two

conditions: ereader and book. The researcher taught students in the ereader group to use the following facilitative features: highlighting, note taking, and the dictionary. Students in the traditional text group were taught how to use the same features, but in a traditional format: highlighters, sticky notes, and dictionary usage. The null hypothesis was that no comprehension differences would be noted between text modalities (ereader and book). However, it was predicted that the ereader group would have increased comprehension and be more motivated to read due to the facilitating features of ereaders (i.e., highlighting, note taking, and dictionary), which may facilitate student interaction with the text. Specifically, the ereader used in this study was a Nook.

Research Questions

Overarching Research Question: How do sixth-grade students comprehend a moderately challenging text while reading in two different modes, from a Nook and from a book?

1. Are there statistically significant differences between the Nook and book groups' overall comprehension? Are there statistically significant differences between the groups' responses to literal and inferential comprehension questions, specifically?

2. Are there statistically significant differences between the Nook and book groups on the Modality and Motivation to Read Survey (MMRS) scores?

3. Are there descriptive differences between the Nook and book groups on journal entries, extended response comprehension questions, expressions of interest in the text, and field notes?

4. What do respondent interviews reveal about students' reading of moderately

challenging text from a Nook and a book?

The subsequent null hypothesis, that there will be no significant difference in reading comprehension scores between the Nook group and the book group, was tested for the quantitative aspect of this study. This involved comparing student performances on a standardized comprehension test with a significance level of .05.

Overview of Research Design

This study utilized a Sequential Explanatory mixed methods design with the quantitative phase utilizing a quasi-experimental design and the qualitative phase using a content analysis design. The variant here is the participant selection model. The quantitative data were collected in the first phase and informed the qualitative data collection process. The Matched Pairs Design model (Hinkle, Wiersma, & Jurs, 2003) was used in this study to match students according to spring reading comprehension levels. The single dependent variable was student scores on parallel forms of a single test. Participants were matched according to Lexile levels from this single test, the spring Measures of Academic Progress (MAP) assessment. The Common Core State Standards call for students to read increasingly complex text in order to *stretch* the grade-level Lexile band (CCSS, 2012). In this study, participants' reading levels ranged from second- to eighth-grade level according to MAP scores. The Lexile band range for sixth-grade is 665L to 1000L, and the Lexile score for the novel *Sounder* (Armstrong, 1969) is 900L; therefore, it was the chosen text for this study.

Approximately 40% of the participants were selected to participate in respondent interviews (Creswell, & Plano Clark, 2011; Creswell, Plano Clark, Gutmann, & Hanson,

2003; Morgan, 1998; Tashakkori & Teddlie, 1998). Participants were purposefully selected in groups, using post-reading comprehension assessment scores: low reading comprehension scores, average comprehension scores, and high comprehension scores. All data were analyzed collectively and used to answer the overarching research question.

Assessment Instruments

Assessment instruments for this study are listed below.

1. Measures of Academic Progress (MAP). Students' scores on the spring 2013 MAP Lexile level were used as an estimate of students' ability as a means to match students between Nook and book groups (Hinkle et al., 2003). Each subject in one group was matched to a subject in the other group.

2. Modality and Motivation to Read Survey (MMRS). The MMRS was used to detect any difference in reading motivation between the Nook and book groups. The MMRS was a researcher-developed instrument, adapted from a number of published surveys (Gambrell, Palmer, Codling, Mazzoni, & Anders, 1996; Pitcher et al., 2007), but aligned more closely with the intent of the research questions for this investigation. The MMRS for each the Nook and book group, was administered prior to the study intervention and was administered at the end of the intervention.

3. Journal Entries. The journal entries were analyzed to capture differences in reading comprehension (higher level thinking) between the Nook and book groups. Journal entries were used as a reflective element to provide insights about

the depth of student understanding. Quantitative content analysis (Berelson, 1952; Krippendorff, 2004; Weber, 1990) was used to analyze students' responses.

4. Comprehension Assessment questions. Literal and inferential questions drawn from a published teacher guide that accompanies the texts were used to assess comprehension. Literal and inferential test questions were verified by having four literacy specialists read the novel and confirm the literal and inferential nature of comprehension test questions.

5. Respondent interviews. Approximately 40% of participating students were selected from their comprehension score classifications of low (6), medium (6), and high (6) to participate in respondent interviews. Their responses were analyzed to gain insight into their thoughts and perceptions of reading from Nooks and books.

Overview of Methodology

The research paradigm used in this study was the pragmatic paradigm. The pragmatic paradigm considers which research methodologies work best, in conjunction, to explore the posed research questions. Pragmatism was used allowing the researcher to access the most appropriate methods of inquiry. Philosophical underpinnings of the mixed methods research methodology are contextualized within the pragmatic paradigm.

The research methodology used in this study was mixed methods. Specifically, the Sequential Explanatory Design was used, which combined quantitative and qualitative data collection approaches during distinctive phases of the research process (Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 1998). This mixed methods

process aligned within the pragmatic paradigm (Tashakkori & Teddlie, 1998). This study addressed individual experiences within a sixth-grade classroom.

The data in this study were collected sequentially, with the quantitative data collected first, followed by the qualitative data. The participant variant used here was the participant selection model. In this study, the quantitative phase included answers, in a multiple choice test format, to literal and inferential comprehension questions (Hinkle et al., 2003) and responses to journal entries. The qualitative phase included students' responses to respondent interview questions (Creswell, & Plano Clark, 2011; Creswell et al., 2003; Morgan, 1998; Tashakkori & Teddlie, 1998).

Limitations of the Study

One limitation of this study was the small sample size; the context of the study was limited to two sixth-grade classrooms (*n*=36) in one school district. Although the matched pairs design was used to increase power and eliminate variation, extending this study to a larger group of students in the future could reveal more extensive results. This study may help build upon educators' and researchers' understanding of the intersections between technology usage, motivation, reading comprehension, and students' dispositions toward traditional books and Nooks.

Also, only one text was used in this study, which limits generalizability to other texts. Although choice of books is advocated during personal reading (Fulmer & Frijters, 2011; Gambrell et al., 2006; Sweet et al., 1998), this investigation sought to understand students' independent reading comprehension of moderately-challenging, researcher-assigned text. This approach was used because it more closely resembles actual

classroom reading experiences where teachers assign texts and use texts to evaluate learning. Due to the number of participants used, only one text was chosen for this study. Further studies that implement multiple texts are needed to validate the findings in the current study.

Researcher bias was another limitation of this study. I am an advocate for adolescent use of technology both within the classroom context and beyond. Measures to reduce this bias are discussed further in Chapter 3. Only three facilitative features, highlighting, notes, and the dictionary, were chosen and taught to participants. I attempted to reduce this bias by using a script to give directions for the study and delivering those directions as explicitly as possible across both the Nook and book groups. I also conducted weekly meetings with the two teachers involved in this study to evaluate the consistency of each classroom context and conducted two fidelity checks for the Nook group and book group (fidelity checklist developed and used by researcher).

<center>**Definitions of Key Terms**</center>

The following terms are defined to further clarify and explain the purpose of this study.

1. **ereader -** electronic readers, such as Kindle (Amazon), Nook (Barnes & Noble), Kobo, and Sony reader. For the purposes of this study, the Nook ereader was employed.

2. **Mixed methods** - the process of collecting and analyzing quantitative and qualitative data in one single research study (Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 1998).

3. **Moderately Challenging text** - when the reading task is "slightly beyond ability, learners must increase their effort and use their knowledge and skills effectively to meet challenges" (Fulmer & Frijters, 2011, p. 186). The CCSS (2012) call for an increase in challenging text read by students in K-12 grade.

4. **Multimodal** - using a variety of ways to communicate meaning. Within the context of this study, multimodal primarily focused on the use of a Nook vs. traditional text.

5. **New literacies** - using the skills and strategies of Internet and Information Communication Technologies (ICTs) to successfully navigate and find information needed (Kist, 2005; Leu, Kinzer, Coiro, & Cammack, 2004).

6. **Traditional text/book** - paper text, a traditional book.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to provide a review of the research literature as it relates to multimodal approaches for reading and understanding complex texts. First, the theoretical foundation for this study is examined through the lens of a developing theory of new literacies (Leu et al., 2004). Next, an overview of the literature focused on the principles and key components of ereader and traditional-text reading groups are provided. Third, current applications of technology integration are examined, providing a contextual framework for the use of ereaders, traditional text, and respondent interviews.

As McEneaney (2011) posited "… digital literacies are changing what it means to be a reader" (p. 376). Therefore, this study explores how sixth-grade students read moderately challenging multimodal texts from Nooks and books. An examination of the theoretical foundations of new literacy theory and a review of the research regarding digital and traditional text, with an emphasis on the potential buffering effects of digital text, provides a context for this study.

Building a Theoretical Framework for New Literacies

Literacy learning in today's classrooms is in a state of flux. No longer do students learn in a teacher-centered, rote-learning environment. The essence of learning is changing. Education and literacy learning have entered into a period of rapid technological change. In the recent history of new literacies theory, there are essentially three theoretical stances regarding how researchers view the impact of technology's influence on literacy development. First, the transformative view between technology and

literacy, essentially the exploration of how technology has changed literacy learning, is a foundational theoretical stance that was studied and documented in the 1990s (McKenna, Reinking, Labbo & Keiffer, 1999; Reinking, 1995, 1998). Second, according to Garton and Wellman (1995) the transactional view of the technology and literacy connection noted an exchange between literate acts and technology. In the transactional perspective, technology and literacy are impacted by one another; through this transaction, either one or both are changed or shaped (Bruce, 1997; Garton & Wellman, 1995; Haas, 1996; Labbo, Phillips, & Murray, 1995-96; Leu, 2000). The use of technology alters literacy learning in a variety of ways. Therefore, a transaction takes place between technology and literacy learning.

The theoretical perspective used in this study was based on a combination of the transformative and transactional views. Leu (2000) posited that a third view of literacy must be considered due to "rapid and continuous change in the forms and functions of literacy" (p. 744). He used the term *deixis*, often used by linguists to understand the changing nature of language, to explain the concept of continual change in educational technology and its relation to literacy development and instruction (Leu, 2000, pp. 744-745). Due to the rapidly changing nature of technology and the way educators adapt their teaching to a continuously changing environment, the definition of being literate often changes simultaneously with changes in technology (Coiro, 2003). This theoretical concept of "literacy as technological deixis" requires researchers to study the relationship between literacy and technology in the rapidly changing educational environment (Leu, 1997).

As Leu (2000) stated, "[c]hange increasingly defines the nature of literacy in an information age" (p. 743). Within the context of this study, new literacies were used in a more controlled manner. Monitoring online Nook usage was an issue for teachers and researchers. Therefore, students' online access while reading from the Nooks was limited. Although there was not complete freedom for student use, a theoretical framework for new literacies was still established because portions of new literacies theory meet the criteria for ereading. Reading with an ereader was not necessarily online reading because of the limited ability to leave the text. However, the design attempted to build a theoretical framework based on four of the ten Central Principles of New Literacies (Leu et al., 2004). The four central principles of new literacies that apply to this study were:

1. New literacies are deictic.

2. The relationship between literacy and technology is transactional.

3. New literacies are multiple, multimodal, and multifaceted in nature.

4. Learning often is socially constructed within the new literacies (Leu et al., 2004).

Although societal digital reading experiences are rapidly changing, schools still lag behind in regards to standardized testing. The Measures of Academic Progress (MAP) test, administered within the school district where data were collected for this research, requires students to read text and answer multiple-choice questions. Students were not able to access the Internet during an online reading experience. By replicating these testing limitations, this study kept with actual student experiences in the school testing environments.

Pre- and post-tests for comprehension are more in line with current school district standardized testing procedures, which sixth-graders participate in twice a year and more often as they progress through the public school system. The conundrum of using standardized practices (i.e., MAP tests) while incorporating new literacies is a reality in many digitally disadvantaged school districts across the country. The principles listed above create an outline of this study and must be seen as a guide rather than a goal.

Review of Research Literature

Studies Comparing and Contrasting Ereaders and Books

Schugar, Schugar, and Penny (2011) compared reading comprehension, critical reading, and study skill use between college students reading on ereaders and traditional texts. This research also focused on specific skill sets needed to effectively read e-texts. The authors did not find differences in reading comprehension levels between the ereader group and the traditional text group. Data also indicated that the traditional text group showed more use of critical reading skills (e.g., highlighting, bookmarking, and text annotation) than the ereader group. In this study, college-aged students' dispositions toward using ereaders were studied. Researchers found no significant differences between the ereader and traditional text group, but called for further research on this topic to better understand the intersection between technology and comprehension.

Additionally, Schugar, Schugar, and Penny (2011) focused on comparing the use of study skills on ereaders and on traditional texts. This study raised questions about how ereaders can influence learning in the college classroom. They did not find any differences in levels of reading comprehension between the groups. However, limitations

of this study centered on the college population studied. The authors stated that due to the fact that the participants were first-year college students in a general writing class, their reading motivation levels might be low. Future implications focused on a deeper understanding of how and if ereaders influence comprehension and how they might benefit students during the comprehension process.

Pacino and Noftle (2011) explained and gave examples regarding the ways in which Information Communication Technologies (ICTs) can be incorporated into the curriculum to better meet the needs of today's students. The authors raised stakeholders' awareness of new technologies and highlighted their effective use in the classroom. They also outlined the importance of using multicultural curriculum to help "eliminate the digital divide in schools, communities, and global societies" (pp. 481). Pacino and Noftle (2011) related cultural inequities in education with limited digital access because the same disenfranchised youth usually experience both manifestations of inequality.

Pacino and Noftle's study informed the current study through its call to implement The National Education Technology Plan (2010), which set goals for the educational system to address "Learning, Assessment, Teaching, Infrastructure, and Productivity" (pp. 482). The information revealed in their study informs the current study through addressing the skills and cognitive abilities needed for students and teachers to be successful in using digital literacies. Finally, support for effective use of digital literacies was well grounded in the research provided.

Miranda, Williams-Rossi, Johnson, and McKenzie (2011) reported that having struggling middle school students use ereaders resulted in significant increases in the

value of reading for boys. This finding was based on interviews that were conducted with 26 students out of 199 who participated in a larger attitudinal study. The larger study was conducted with middle school boys who participated in a 20-25 minute Sustained Silent Reading time.

The research of Miranda et al. (2011) raised important questions about the role of ereaders in the literacy lives of middle school students who struggle to read. These findings informed the current study because the studies with middle school students are limited. Also, during the pilot phase, boys were found to have increased interest in using ereaders, while girls preferred traditional texts. This study used what was considered high-interest text, *Bud, Not Buddy* (Curtis, 1999) and *The Watsons Go to Birmingham* (Curtis, 1996). The use of contemporary literature was similar to the pilot study. However, for the current study, classic text was used to offer a more moderately challenging reading experience for students. More investigation was needed regarding specific findings of why boys preferred ereaders and to why they found this medium more accessible than traditional texts.

Larson (2009) conducted an investigation of fifth grade students using ereaders for the first time. After an adjustment period, students began conducting searches and using ereader sticky notes. In the end, all ten students reported they preferred reading from ereaders rather than from traditional text. The tools available helped students have a transactional experience with the e-text (Garton & Wellman, 1995; Rosenblatt, 1995). This transactional experience related to the enjoyment of the students' ereader experience. The findings of this study (i.e., increased interaction with ereader texts)

informed the current study. Although Larson (2009) does not differentiate between gender specific findings, she did not focus on a similar age group and called for further studies focusing on ereader usage in the middle grades.

Related eReader Studies

Larson (2010) investigated the ereading-experiences of two, second-grade students from diverse reading and ethnic backgrounds. For two weeks, Amy and Winnie (pseudonyms) read the same book, *Friendship According to Humphrey* by Betty G. Birney (2006) for 40 minutes a day using the classroom's Kindle. During the reading process, the girls interacted with the text using tools provided on the Kindle. For example, they highlighted passages and used the dictionary feature. Findings suggested that by using the ereader and its tools, the girls used new literacies strategies and engaged with text frequently. Amy and Winnie used the digital features, like notes, and they reported feelings of more control and freedom as readers. Mrs. Miles, the classroom teacher, read the girls' notes and learned more about their reading process. For example, when Amy struggled with certain plot-driven or thematic aspects of the novel, Mrs. Miles helped her. Also, she learned that Winnie, the better of the two readers, had a sense of humor that was not noticed earlier.

Additionally, Larson (2009) found when students used the notes feature, they were more interested in getting their thoughts written than in grammatical conventions. Findings from the study suggest that research regarding how students read with digital text and ereaders has the potential for "an array of new teaching and learning possibilities as traditional and new literacy skills are integrated in meaningful ways" (Larson, 2009, p.

21). Although this study focused on second graders and used a case study model, it reinforced the current trend in ereader and digital text research, and answered the call for more studies to uncover more about the students' experience reading on a digital device.

Rowsell and Burke (2009) explored the literacy interests, motivations, and practices of two middle school learners. The authors used a case study model, which included interviews (incorporating stimulated recall) while students read online material from two designated websites during a dual location study. Students, Peter and Patty (pseudonyms), responded to questions, and researchers audiotaped the dialogue during 40-minute sessions. Peter used the Naruto website, while Patty used the Webkinz website. The facilitative features of each website were noted. These features were further explained within the context of student learning. That dialogue was transcribed and further follow-up interviews were used to find answers to unanswered questions.

Findings revealed that Peter "[wa]s a capable reader in this setting, yet he continues to underachieve in school reading assignments" (Rowsell & Burke, 2009, p. 113). Interviews indicated that Peter enjoyed the rapid movement of the game, a buffering feature of online reading, which helped support his engagement. Patty engaged with the Webkinz website just as she engaged with her normal school work, and data collected from the interviews showed "how a motivated and engaged learner uses these available modes, such as games, design features, and interaction, with other players to formulate new discourses and reconceptualize new understandings (Cope & Kalantzis, 2000; Roswell & Burke, 2009). Both students' online reading experience required them to adapt to each particular website in order to successfully navigate that site.

Rowsell and Burke's (2009) research reinforced findings in the literature that online reading requires additional skills and assumptions, a dynamic story line for example, that traditional text did not require. Peter read fluently in the online environment, while he did not read traditional texts fluently. Patty increased and exercised her skills in the online format, while still excelling at school. Authors recognized the difficulty in understanding complex online reading practices. Roswell and Burke (2009) reinforced that the average English teacher still taught using traditional text. Further research will provide an understanding of student reading practices in a digital format.

Kemp, Lutz, and Nurnberger (2012) asserted that college students in a small digital library study found the ereaders (i.e., Kindle, Sony Reader, and Nook) convenient and easy to read. Students who used the ereaders had varying levels of experience with the devices. Students' experiences ranged from personal ownership, with requests for the library to upload eBooks to personal devices, to first-time experiences. Limited content availability and lack of technological skill usage for traditional study techniques, for example highlighting, were issues that students noted. To clarify, highlighting features were available on the ereaders, but the process was not as instinctive as using paper and highlighter. Because students mainly used the ereaders for academic reading, traditional interactive reading strategies were utilized.

The authors supported their claims with findings from a small pilot study in which librarians "wanted to know if students could effectively use engineering and scientific materials and other relevant content on e-readers" (Kemp et al., 2012, p. 193). The

authors' purpose was to identify the library procedures for implementing these devices, understand more about student use of academic content on ereaders, and increase awareness. Many students wanted the freedom to check out any books they wanted, just as they would from the traditional library system, but were unable due to lack of availability or mere lack of library funds.

Kemp, Lutz, and Nurnberger (2012) raised awareness about college level students' use of ereaders to comprehend academic text. Although this study was a small pilot study, it informed the current study through its emphasis on reading academic text. Findings from this study differed from other studies because of the use of scientific and academic text. For example, one student reported that mathematical functions were not represented correctly on the ereader device. Because of the nature of pilot studies, the authors called for replication of their study. However, this study did provide insight into the use of ereaders for academic text.

Summary of Literature Review

Both the theoretical foundations and review of the research presented related to the current study in two significant ways. First, historical emphasis on emerging literacies theory is changing almost as quickly as the modes of technology. The review of the research literature in this chapter was designed to offer a glimpse into how principles of new literacy theory relate and reflect current findings in the research literature. Second, the literature review related to ereader and traditional text revealed that the research was still somewhat limited. Much of the research has been conducted either in early grades (Larson, 2010) or with college-aged students (Schugar, Schugar, & Penny, 2011) with

very little focus on middle grade students. It is clear that more research on the potential buffering features of ereaders is needed with particular consideration of how adolescent readers comprehend moderately challenging text to further understanding.

The purpose of this study was to investigate sixth-grade students' reading comprehension and motivation while reading moderately challenging text under two conditions: ereader and book. It was predicted that the ereader group would have stronger comprehension and be more motivated to read due to immediate access to the facilitating features of ereaders (e.g., highlighting, note taking, and dictionary).

CHAPTER THREE

METHODOLOGY

The purpose of this study was to investigate how sixth-grade students comprehend moderately challenging text while reading in two different modes, from a Nook or from a book. Students in the Nook and the book groups were introduced to three techniques: highlighting, note taking and use of the dictionary. This chapter provides an overview of each phase of the research methodology (a brief description of the pilot project can be found in Appendix H). This chapter is organized into the following segments: (a) overview, (b) participants and school site, (c) instructional materials, (d) assessment instruments, (e) research design, (f) procedures, (g) data coding and analysis, and (h) summary.

Overview

Once approval to conduct the study (see Appendices K, L, and M) was granted, the researcher met with the principal and teachers at the research site to begin implementation of the study. To facilitate the use of Nooks, several procedures were conducted. First, all Nooks were charged, updated with texts, registered to an online email address, and encased for protection. Then, Nooks were delivered to the school and were placed in the classroom. Permission forms were obtained from all parents of participating students. The next two months were devoted to study implementation and data collection in the classroom.

The current study employed a Sequential Explanatory Mixed Methods Design model (Creswell & Plano Clark, 2011). In the quantitative phase, students read a book

and completed a test, which measured their literal and inferential comprehension. Due to the low number of participants (*n*=36), this study employed a Matched Pairs Design model (Hinkle et al., 2003) to match students according to their 2013 Measures of Academic Progress (MAP) test scores. The Matched Pairs Design model is used when the participant number is low and statistical power could influence the outcome of the significance. Matched pairs groupings were then established based on spring semester MAP scores for reading (See Appendix J). The researcher matched students prior to beginning the study and then randomly assigned students within pairs to either the Nook or the book group. Students also responded to twice-weekly journal entries. The researcher kept field notes. Field notes and journal entry data were analyzed using the Quantitative Content Analysis method (Berelson, 1952; Krippendorff, 2004; Weber, 1990).

In the qualitative phase of this study, respondent interview data were analyzed using the Qualitative Content Analysis method (Holsti, 1969; Lincoln & Guba, 1985; Strauss & Corbin, 1990b). The qualitative data consisted of verbal statements made in response to respondent interview questions. In this study, sixth-graders' personal experiences while reading Nooks and books were studied both quantitatively and qualitatively and compared across levels to better understand the readers' experiences.

Participants and School Site

The 36 students who participated in this study were drawn from two classrooms at Judson Middle School (JMS) (a pseudonym), a Title I school, located in the southeastern region of the United States. Over half of the students at this school receive free or

reduced lunch. The school attendance area includes low- and middle-income families with limited home Internet use. According to the 2000 Census, the median family income was $34,184, and 17.2% of the population reported living below the poverty line. According to Steinberg (2014), "85% of US homes have Internet access, with differences in percentages among different income groups becoming much smaller in recent years" (p. 238). However, this site was chosen because it was considered a low-income, rural area and students reported minimal access to technology. Specifically, students reported minimal access to ereaders and their facilitative features. The two teachers involved in this study confirmed students' limited access to and use of technology other than through limited use of the school's computer lab. Prior to the implementation of this study, the students in these classes had not used Nooks for classroom instruction.

Students

The 36 participants in this study were all first-time sixth-grade students. There were 19 students enrolled in Mrs. Thomas' (a pseudonym) class, and 17 students were enrolled in Mrs. Smith's (a pseudonym) class. The student participants included 30 Caucasian, four Hispanic, and two African-American students with 20 females and 16 males. Participants' reading levels ranged from second- to ninth-grade level according to MAP scores. There was a total of 8 participants reading below grade level: two on the second-grade level, two on the fourth-grade level, and four on the fifth grade level. The remainder of participants read either on or above grade level. A complete list of scores is noted in the *Matched Pairs Score Summary* (See Appendix J).

Teachers

The two sixth-grade language arts teachers who participated in this study were selected based on their teaching credentials and willingness to participate in a study using a Nook. Mrs. Thomas had 17 years of teaching experience, and Mrs. Smith had 9 years of teaching experience. They both held master's degrees in Literacy, which they earned in May of 2010. Mrs. Thomas was a Nationally Board Certified teacher. Both teachers supported technology usage within their classes and personally. Neither reported being technology experts; therefore, the researcher provided technology support for each classroom.

In this study, the role of the teachers was somewhat limited in that the researcher delivered the primary instruction and directions to the students. However, teachers helped by providing advice about communicating with parents and students when needed. Teachers were also instructed on how to give students directions in case the researcher was not present. Throughout the study, weekly meetings and email were used to communicate with the two classroom teachers in order to monitor the progress of the study.

Role of the Researcher

As the researcher, I served as the main technology advisor and participated in the study in a teacher role. I documented the process through field notes. Thus, I served as a participant-observer during the study. An important component of mixed methods research required the researcher to engage in the mixing of quantitative and qualitative data (Creswell, & Plano Clark, 2011; Creswell, et al., 2003; Morgan, 1998; Tashakkori & Teddlie, 1998). Thus, the researcher engaged in reflexivity, reflecting on the research

relationship between quantitative and qualitative data, and the entire research process (Denzin, 1997). As a researcher, I also engaged in reflexivity to clarify my own role and relationship to the study, and to reduce researcher bias.

Although I am a strong advocate for student technology use in the classroom, I read primarily from traditional text, especially when the reading is challenging. I own a Nook HD, but use it sparingly, mostly to read current fiction or books with my children. I read almost all news online. I enjoy keeping a personal journal in a paper notebook. I consider myself an online reader, but rely heavily on printed text for challenging comprehension tasks.

In the role of teacher-researcher, I instructed students on the use of highlighting, note taking, and dictionary usage, and also briefly introduced each book and answered questions from students. I posted journal entry prompts twice per week. I recognize that I am a teacher-researcher. However, I did the following to engage in reflexivity and reduce bias: collected multiple forms of data using a mixed methods approach, utilized a matched pairs design, conducted member checking with the teachers, utilized a fidelity checklist for directions for students, used inter-rater reliability with an adolescent literacy specialist, and collected field notes daily. Although it was challenging to eliminate researcher bias completely, the research design and data collection procedures were chosen to minimize bias as much as possible.

Materials

Both instructional and assessment materials were used for this study.

Instructional Materials

The instructional materials for this study included: highlighters, sticky notes, dictionaries (Merriam-Webster, 2011), pens/pencils, Nooks, and hard copy versions of the novel *Sounder* (Armstrong, 1969). The instructional materials for this study are explained below.

Text. The novel, *Sounder* (Armstrong, 1969), was chosen because it was a classic text, and it was at the higher and more challenging range within the Lexile scores for sixth-grade. The Lexile range for sixth-grade is 665L to 1000L, and the *Sounder* Lexile score is 900L. The selection of *Sounder* was in keeping with the Common Core State Standards' call to challenge students to read on, or slightly above grade level (CCSS, 2012). According to the CCSS (2012), students' interests should also be taken into consideration when selecting a novel. *Sounder* was a classic novel that told a story that is potentially relatable to rural middle school children. In this study, half of the students read an electronic version of *Sounder* on a Nook, while the other half read a hard-copy book version.

Other instructional materials used were specific to each mode of reading. For the Nook group, all the instructional materials were online and students read the book electronically from the Nook. Nook group participants used the highlighting, note taking, and dictionary look-up tools available on the device. For the book group, the students used actual highlighters, sticky notes, and dictionaries as resources. Specifics of instructional materials are listed below.

Nook. The Nook High Definition Tablet was portable and relatively inexpensive. The cost of a Nook started at $149.00 (Barnes & Noble, 2013). The Nooks were chosen

over other ereaders because there was a class set readily available for research purposes and because of the relatively low cost. The relatively low cost and usability of the Nook made it affordable and accessible for these students and school districts.

Highlighting electronic version. Students had access to the highlighting feature of the Nook HD to highlight information that they thought was relevant.

Highlighting hard-copy version. Students had access to neon yellow *Sharpie* highlighters to emphasize information in the hard-copy version of *Sounder*. Students highlighted in the text.

Sticky notes electronic version. Students had access to the notes feature of the Nook HD to create notes in the text.

Sticky notes hard-copy version. Students had access to yellow *Post-it* notes to create notes in the text.

Dictionary electronic version. Students had access to the dictionary feature found on the Nook HD.

Dictionary hard-copy version. Students had access to individual, hard copy versions of the dictionary (Merriam-Webster, 2011).

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Assessment Instruments

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For this study, five assessments were used to measure various aspects of familiarity with the novel and comprehension (see Appendices C, D, E, F, & G). The assessments were: the Pre-Intervention Inventory, the Pre- and Post-Modality and Motivation to Read Survey, Journal Entries, a Post-Comprehension Assessment, and Respondent Interviews. Specific explanations of each assessment are listed below.

Pre-Intervention Inventory

First, a researcher-constructed Pre-Intervention Inventory was used to measure student familiarity with the book and movie version of *Sounder* before the study began. This survey listed five novels, including *Sounder*, to determine whether students were familiar with the chosen novel (see Appendix D). The results indicated that two students had knowledge of *Sounder*. One student had watched the movie and one student had read the book and watched the movie. Those two students did not participate in the study.

Modality and Motivation to Read Survey Assessments

The Pre- and Post-Modality and Motivation to Read Survey (MMRS) was administered to assess the constructs of motivation and modality before and after reading. Before and after reading the novel, and after completing the comprehension assessment, students completed a 20-item Modality and Motivation to Read Survey (see Appendix F). Certain statements addressed student motivation, while others measured students' opinions about reading modality, using technology or traditional text to read. The MMRS was used prior to the intervention to collect baseline data concerning students' perspectives about motivation and modality regarding their reading experience. The MMRS was a researcher created survey based on the Motivation to Read Profile and the Adolescent Motivation to Read Profile (Gambrell et al., 1996; Pitcher et al., 2007).

Journal Entries Assessments

Third, a total of four journal entry prompts were collected. Journal entry prompts are listed below:

Journal Entry #1.

What kind of impression does *Sounder* make on you? Why? Support your thinking with examples from the book.

-or-

Free-write about the book and support your response with examples from the book.

Journal Entry #2.

What does the boy's mother do with walnuts? Why is it important? What does it tell you about the family? Support your thinking with examples from the book.

-or-

Free-write about the book and support your response with examples from the book.

Journal Entry #3.

Why don't the characters have names? Explain.

-or-

Free-write about the book and support your response with examples from the book.

Journal Entry #4.

The boy read in his book, "Only the unwise think that what has changed is dead." When the boy became a man, how did this statement prove to be true?

-or-

Free-write about the book and support your response with examples from the book.

Students had the choice to respond to each prompt or free write about the novel. However, students were instructed to include citations and references from the text in their chosen response. Students wrote in their journals during the reading process, thus enabling the investigator to further capture and understand these sixth-graders' affordances while reading (Brophy, 2008). Through this process I aimed to learn more about students' thoughts and ideas during reading in multi-modal environments. As students wrote in their journals, they had the potential to become more open and unfettered in their thoughts and responses. Students were allowed to write in their journals about novel-related ideas and/or questions. There were four writing sessions for each participant (see Appendix C).

Comprehension Assessment

Both groups responded to a Post-Comprehension Assessment after reading the novel *Sounder* (see Appendix G). The comprehension assessment consisted of 30 comprehension questions, 15 literal and 15 inferential questions, two open-ended questions that required extended responses, and three interest questions. The Post-Comprehension Assessment was given after students completed reading *Sounder*. The literal and inferential questions were selected from published teacher materials, *Sounder Comprehension Test* (TeacherVision, 2013). The two novel-based essay questions, also selected from published teacher materials (Green, 2004), required participants to use extended responses. Also, as part of the end of the Post-Comprehension Assessment, participants answered three questions regarding their attitudes toward reading *Sounder*.

The literal and inferential questions were drawn from the website *TeacherVision*

from a unit on *Sounder*. Confirmation of the level of the literal and inferential test

questions was determined by the agreement of four literacy experts. Four independent

literacy specialists, all M.Ed. graduates with expertise in literacy, identified each question

as either literal or inferential, which established validity on ranking of questions. These

four literacy experts reported 100% agreement on level for all 30 questions used in the

assessment.

Respondent Interviews Assessment

Respondent interviews were used to collect student responses regarding their

reading experiences. The respondent interview questions were based on the interview

questions from the pilot study (see Appendix H). The respondent interviews were used to

capture student responses to either the Nook or book experience. The researcher

conducted the interviews upon completion of the comprehension assessment and the

MMRS. The interviews were recorded and transcribed for analysis.

The interview experience was designed to learn more about student experiences

while reading in two different modalities and to understand which reading modality the

participants preferred. Interviewing adolescents can prove challenging. However, it is

important, and one reason in conducting interviews with these respondents was "to allow

them to give voice to their own interpretations and thought rather than rely solely on our

adult interpretations" (Holstein, J. A., & Gubrium, J. F., 2003). Rapport is essential and

was established through informal conversations prior to the interview. The interviews

allowed for open-ended responses and provided participants the opportunity to discuss

their experiences (Creswell & Plano Clark, 2011; Knodel & Saengtienchai, 2005). A copy of the respondent interview is included (see Appendix E).

Research Design

The research methodology used in this study was mixed methods, which combined quantitative and qualitative data collection processes (Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 1998). The mixed methods process aligned within the pragmatic paradigm (Tashakkori & Teddlie, 1998) in that the most practical approaches of both the quantitative and qualitative methods were used to answer the research questions. Quantitative and qualitative methods were used to collect data and to speak to the specific research questions. This study addressed individual student experiences within a sixth-grade classroom. In this study, a mixed methods study aimed at allowing for more data to be revealed about reading experiences (Creswell & Plano Clark, 2011). This mixed methods study used the Sequential Explanatory Design, in which data are collected during distinctive quantitative and qualitative phases of the research process (Creswell & Plano Clark, 2011). In this study, the quantitative data, comprehension assessment scores, journal entries, and field notes were collected first and informed the selection of the respondent interview participants.

Research Questions

Overarching Research Question: How do sixth-grade students comprehend a moderately challenging text while reading in two different modes, from a Nook and from a book?

1. Are there statistically significant differences between the Nook and book groups'

overall comprehension? Are there statistically significant differences between the groups' responses to literal and inferential comprehension questions, specifically?

2. Are there statistically significant differences between the Nook and book groups on the Modality and Motivation to Read Survey (MMRS) scores?

3. Are there descriptive differences between the Nook and book groups on journal entries, extended response comprehension questions, expressions of interest in the text, and field notes?

4. What do respondent interviews reveal about students' reading of moderately challenging text from a Nook and a book?

Research Design Overview

Within the Sequential Explanatory Mixed Methods Design, data were collected in two phases. For the quantitative phase of this study, students were matched according to individual spring semester Measures of Academic Progress (MAP) scores (see Appendix J). For the qualitative phase, respondent interviews were used to further explore participant's experiences during each reading mode.

Sequential explanatory design. Data collection procedures included collecting the quantitative data first, analyzing that data, and then using the results to "inform the follow-up qualitative data collections" (Creswell & Plano Clark, 2011). In this study, participant scores on the Post-Comprehension Assessment were analyzed and then used to select respondent interview participants.

Matched pairs design. Data were collected by using the spring semester MAP test to enable the matched pairs design model by matching groups of two students on the

relevant variable of their spring semester reading score on the MAP (Hinkle et al., 2003). For example, two participants with the two highest MAP scores were matched and then randomly assigned to either the Nook or book group (See Appendix J). This process was completed until all students were assigned a matched pair. This matching process is used when there is a small sample size and statistical power needs to be increased. By matching samples on a similar and relevant variable, a participant in one sample will tend to have similar scores to the participant in the other sample (Hinkle et al., 2003). While other researchers have identified gender as one factor that helps to explain individual differences in reading engagement (see Appendix G; Miranda et al., 2011; Rowsell & Burke, 2009), gender was not addressed in this research. This study addressed Larson's (2009) call for further studies focused on ereader usage in the middle grades.

Purposeful sampling and mixing procedures. In the Sequential Explanatory Design model, the quantitative phase aided in purposefully selecting and identifying participants for the qualitative phase (Creswell & Plano Clark, 2011; Creswell et al., 2003; Morgan, 1998; Tashakkori & Teddlie, 1998). Using the Post-Comprehension Assessment multiple-choice scores, students were placed into high, average, and below comprehension ranges. Assessment score ranges were the same for the Nook group and the book group. Within each range, I randomly selected 3 students with high, average, and below comprehension scores to interview. Details of the selection process are explained in the Implementation section below. A total of 18 participants were interviewed.

Content analysis. Quantitative Content Analysis was used to analyze the journal entry and field notes data (Berelson, 1952; Krippendorff, 2004; Weber, 1990). Qualitative Content Analysis was used to analyze qualitative respondent interview data (Guba & Lincoln, 1981; Holsti, 1969; Lincoln & Guba, 1985; Strauss & Corbin, 1990). Data were used to understand and explain quantitative findings (Bryman, 2006; Creswell & Plano Clark, 2011; Greene, Caracelli, & Graham, 1989). Findings from the respondent interview answers were used to legitimize (Onwuegbuzie & Johnson, 2006) findings between the Nook and book groups. Participant quotations and similar thematic findings were studied to aid in increasing the validity of quantitative findings (Creswell & Plano Clark, 2011).

Procedures for Interventions

In this section, preliminary procedures for assignment to treatment conditions and the implementation of the matched pairs design are described. Next, procedures for the implementation of the two treatment conditions are described.

Procedures Prior to Implementation of the Two Treatment Conditions

Prior to implementation of the Matched Pairs Design Model and prior to the implementation of the study, spring Measures of Academic Progress (MAP) reading scores were collected from the classroom teachers. The MAP test scores were reported in Rausch UnIT scores (RIT) and estimated a student's instructional reading level (Northwest Evaluation Association, 2013). Student pairs were established by matching students with similar scores based on their spring MAP scores. Based on the matched pair groupings, students were then randomly assigned to the Nook or the book group. Each

group was then assigned a room for their independent reading time. The researcher provided instruction for each group's intervention. It was then established by the researcher that during the intervention, both groups of students would read independently for 25 minutes each day. This time period matched already established classroom procedures and mirrored participant practices.

In this study, a Pre-Intervention Survey was administered to ensure that students were not familiar with the novel *Sounder*. Therefore, the researcher was able to adapt and allow for minimal changes after IRB approval was granted.

Procedures for the Implementation of the Nook and Book Treatment Conditions

Student scores on the spring Measures of Academic Progress Test were used to match students by ability establishing a Matched Pairs design model. Lists of matched students were then assigned to Nook and book groups using a 2-point differential of the MAP score when possible. The Nook and the book version of the novel *Sounder*, along with highlighters, sticky notes, and dictionaries (either electronic or hard-copy) were then assigned to each student in each group to establish the intervention, and the facilitative features of each reading device. A brief introduction was read to each group to establish a succinct starting point. Four journal entry prompts were identified by the researcher and used as needed during the journal-writing phase of this study.

Study Implementation

The training sessions for instructing students in both the Nook and book groups in the use of highlighting, notes, and dictionary use took place on the first day, with a 30 – 35 minute session for each group. Students were informed that they would be reading

texts from either a Nook or book depending on treatment condition assignment. Students

were given instructions on how to use the features of highlighting, note taking, and the

dictionary for each mode of reading. For the Nook group, students were taught to use the

electronic highlighting, notes, and dictionary features. For the book group, all features

were taught using actual highlighters, sticky notes, and dictionaries. Students were

allowed to ask questions if they did not understand how to use the features of either the

Nook or the book.

Implementation of Nook and Book Intervention Procedures

On day one, the researcher read students a brief introduction of the text that they

would be reading on a Nook or book, according to treatment condition (see Appendix C-

Intervention). Students in both the Nook and book groups then read *Sounder* (900 Lexile

level) independently during their daily established reading time (20 – 25-minutes) at the

beginning of their Language Arts class. According to Caulkins, Ehrenworth, and Lehman

(2012), the Common Core State Standards emphasizes teacher selection of small numbers

of complex texts, and they "recommend that the class devote two to three weeks to the

close study of one novel" (p. 49). Therefore, one novel was chosen for this study and the

time was limited to a two-week period. All students completed the reading of the novel

over a 10-day period (2 weeks).

During a ten-day reading period, this class met daily, and students engaged in

journal writing on days 2 (Tuesday), 4 (Thursday), 7 (Tuesday), and 9 (Thursday).

Journal entry prompts were written and given verbally to the students by the researcher

(see Appendix C - Intervention). For each Journal Entry assignment, a writing prompt

from established teacher support materials for *Sounder* was used (Green, 2004).

However, students had the choice of using a free-write option in which they discussed a topic of their choice from the novel. In both sets of directions, students were instructed to cite support from the text with page numbers for their answers (CCSS, 2012). Journal entry directions were given by the researcher on day 2 (Tuesday) of the study. Directions were the same for each group and students wrote in their spiral-bound journal, which was provided by the researcher.

Field notes were recorded during the intervention phase of this study for 10 days, by the researcher both during and after the observed sessions. The researcher recorded field notes for each group, Nook and book, by alternating rooms each day. For example, on day 1 of the study (Monday), the researcher recorded field notes for the Nook group as they read, and on day 2 of the study (Tuesday), the researcher recorded field notes for the book group as they read. Field notes were collected on each day of the study during the intervention.

At the end of the two-week period, on the following Monday, students took the Post-Comprehension Assessment. Based on their high, average, and low comprehension test scores, 18 students, nine from the Nook group and nine from the book group, were randomly selected to participate in respondent interviews. Student comprehension assessment results established the guideline in choosing participants for the qualitative phase of the study. Nine students from each group with high, average, and low average scores on the comprehension assessment were chosen to participate in the respondent interview phase. Scores from 26-30 points correct were considered high. Scores from 24-

20 were considered average, and scores from 18-14 were considered low. The low score of 20-points from the middle range set a passing score. Therefore, scores from students in the high range, used to choose respondent interviewers, could be percentages on test scores ranging from 87%-100% on the multiple choice test; students in the average group would have a range of test scores from 67%-80%; and students in the low group would have a range of test scores from 47%-60%. This purposeful sampling procedure allowed the researcher to interview a variety of participants to better answer the qualitative research question: *What do respondent interviews reveal about students' reading of moderately challenging text?*

Data Coding and Data Analysis

In this section, an overview of data coding and data analysis will be provided. The assessments used in this study are Modality and Motivation to Read Survey, Post-Comprehension Assessment, Respondent Interviews, Field Notes, and Journal Entries.

Modality and Motivation to Read Survey (MMRS) Data Coding

Data were collected on student responses on the MMRS at the beginning of the study and at the end. The MMRS responses were scored on the Likert scale; with five representing the most positive and zero representing the most negative answers (Likert, 1932). An examination of pre-intervention scale reliability yielded a Cronbach's alpha of 0.747, and a post-intervention scale reliability yielded a Cronbach's alpha of 0.708.

Data analysis. Dependent t-tests were conducted to establish simple comparisons for between and within group differences. An Analysis of Covariance (ANCOVA) was

conducted to determine if there were statistically significant differences on the MMRS post-test, using the pre-test MMRS score as the covariate.

Post-Comprehension Assessment Data Coding

Comprehension tests were scored for accuracy with a total correct of 30 questions. Participant raw scores were used for analysis. An examination of comprehension assessment items revealed a Cronbach's alpha of 0.735.

The two extended response question answers were graded according to an established teacher rubric. The Ideas and Content section of the 6 + 1 Traits of Writing Rubric was used to assess participant responses (Culham, 2003). Responses were assessed as being rated a 5 – Focused (on target answer), 3 – Average (meets minimum requirements for answer), and 1 - Vague (unacceptable answer).

The three interest questions were tallied and represented by a numbering system. For question 1, a rating system was used, with a 10-8 scoring a "high interest" rating, 7-5 scoring a "medium interest" rating, and 4-0 scoring a "low interest" rating. For questions 2 and 3, a positive or negative scale was used to rate individual responses, with a score of "1" being positive and a score of "0" being negative.

Data analysis 30 multiple-choice questions. Dependent t-tests were used to compare the two groups on the 30 question multiple-choice assessment. Analyses were conducted separately for total scores, literal scores, and inferential scores. IBM SPSS Statistics Version 17.0 was used to conduct the analyses.

Data analysis two extended response questions. An established rubric (Culham, 2003) was used to determine whether the answers were correct or incorrect. Responses

were tallied and compared according to Nook or book groups using Quantitative Content Analysis (Berelson, 1952; Krippendorff, 2004; Weber, 1990).

Data analysis three interest questions. Using Quantitative Content Analysis (Berelson, 1952; Krippendorff, 2004; Weber, 1990), responses were tallied and categorized according to Nook or book groups.

Respondent Interviews Data Coding

Qualitative Content Analysis was used to analyze qualitative respondent interview data (Guba & Lincoln, 1981; Holsti, 1969; Lincoln & Guba, 1985; Strauss & Corbin, 1990). Interviews were recorded and transcribed. Interviews ranged in length from 5-15 minutes per participant. Participant statements comprised the qualitative data for the respondent interviews. Participants who participated in the respondent interviews will be referred to as respondents for this section. The researcher read all interview responses prior to coding. Responses were coded for individual respondents first, before moving on to the next participant responses. Responses were analyzed for all respondents. The researcher conducted analysis of the qualitative data after all interviews were completed. The researcher coded sentences and/or phrases into meaning units. Participants' own words were used when feasible. A total of 48 codes were initially identified, then an additional literacy specialist, conducted inter-rater reliability, agreeing with 43 codes of the 48 initial codes, resulting in a 90% accuracy rate.

Data analysis. Upon completion of the coding process, data were grouped by specific codes, and then patterns were established focusing on the comments of the participants. Rules for analyzing the interview data are listed in Appendix I. The rules

include 7 steps and are explained in detail in Appendix I (Zhang & Wildemuth, 2009).

From the codes, the researcher defined categories. After categories were identified,

subcategories were created, which allowed for smaller sections of information to be

represented within the framework of those subcategories (Bruner, Goodnow, & Austin,

1972). Responses were identified and categorized to make meaning of comparisons of

sixth-graders' experiences while reading on the Nook and in the book formats. Initial

codes were then organized into categories. The categories were defined into context and

beliefs. The researcher used selective coding to identify properties and dimensions of the

qualitative data. Properties and dimensions were then determined as elements of each

category. This process helped to integrate the data, essentially combining the properties

and patterns of the data into one coherent whole (Hammerseley & Atkinson, 1983;

Strauss & Corbin, 1990).

Field Notes Data Coding

Quantitative Content Analysis was also used to analyze journal entry data

(Berelson, 1952; Krippendorff, 2004; Weber, 1990). These data were used to reveal

patterns in participant behavior during this study and the field notes comprised the

quantitative data. Field notes were taken during participant reading sessions, when

conducting member checking with teachers, and after reading sessions to reflect on

aspects of each group. The researcher conducted analysis of the data after the intervention

was completed.

Data analysis. Nook and book beginning times, specifically the time it took for

each group to begin reading, were recorded and compared between groups using

Quantitative Content Analysis (Berelson, 1952; Krippendorff, 2004; Weber, 1990). Findings were categorized to present observation data regarding the Nook and book participant experience.

Journal Entry Data Coding

Quantitative Content Analysis was also used to analyze journal entry data (Weber, 1990). Participant responses to journal entry questions comprised the data set. The researcher conducted analysis of the data after all interviews were completed. Data were also coded for correctness of answers and the number of times text was referenced. These references were further categorized into direct quotations and general references.

Data analysis. Data analysis for journal entries involved two processes. First, journal entries were analyzed for being correct or incorrect using the Ideas and Content section of the 6 + 1 Traits of Writing Rubric (Culham, 2003). Second, the number of times participants in both Nook and book groups referenced text were tallied and categorized.

<div align="center">Summary</div>

Chapter Three has provided an overview of the methods employed in this study on student comprehension and motivation while reading either on a Nook or on a book. Chapter Four will provide the results of the study.

CHAPTER FOUR

RESULTS

This study investigated how sixth-grade students comprehended moderately challenging text while reading from either a Nook or a book. This mixed methods study analyzed student comprehension performance and motivation using a variety of methods. Chapter Four presents the research questions and findings for the four questions posed in this study.

The current study was designed to compare sixth-graders' digital (Nook group) and print (book group) performance on assessments of reading comprehension and motivation. There were a total of 36 participants with 18 students in the Nook group and 18 students in the book group.

Research Questions

Overarching Research Question: How do sixth-grade students comprehend a moderately challenging text while reading in two different modes, from a Nook and from a book?

1. Are there statistically significant differences between the Nook and book groups' overall comprehension? Are there statistically significant differences between the groups' responses to literal and inferential comprehension questions, specifically?

2. Are there statistically significant differences between the Nook and book groups on the Modality and Motivation to Read Survey (MMRS) scores?

3. Are there descriptive differences between the Nook and book groups on journal entries, extended response comprehension questions, expressions of interest in the

text, and field notes?

4. What do respondent interviews reveal about students' reading of moderately challenging text from a Nook and a book?

Findings

Research Question 1: Are there statistically significant differences between the Nook and book groups' overall comprehension? Are there statistically significant differences between the groups' responses to literal and inferential comprehension questions, specifically?

Findings for Total Comprehension, Literal and Inferential Scores

There was a statistically significant difference on the total comprehension score in favor of the Nook Group ($t(17) = 2.41$, $p=.027$). There was a statistically significant difference on the inferential scores in favor of the Nook Group ($t(17) = 2.69$, $p =.016$). There was no statistically significant difference between the Nook and book groups on the literal scores ($t(17) = 1.47$, $p =.159$). See Table 4.1.

Table 4.1

Means and SDs for the Nook and Book Groups on Total, Literal, and Inferential Comprehension Scores

	Nook ($n = 18$)		Book ($n = 18$)	
	M	SD	M	SD
Total	23.22	3.34	20.56	4.55
Literal	12.28	2.35	11.17	2.96
Inferential	10.94	1.70	9.39	2.00

Research Question 2: Are there statistically significant differences between the Nook and book groups on the Modality and Motivation to Read Survey (MMRS) scores?

Findings for MMRS Scores

On the MMRS pre-test, there was a statistically significant difference between the Nook and book groups for pre-test motivation survey data in favor of the Nook group data ($t(17) = 2.57$, $p = .020$). There was a statistically significant difference between the Nook and book groups for the post-test motivation survey data in favor of the Nook group data ($t(17) = 3.73$, $p = .002$). However, there was no statistically significant difference on the pre- to post-test assessments for the Nook ($t(17) = -1.13$, $p = .272$) and book groups ($t(17) = -0.918$, $p = .371$). See Table 4.2. Neither group showed significant changes in the MMRS from pre to post intervention.

Table 4.2

Means and SDs for the Nook and Book Groups on Pre- and Post-MMRS Scores

	Nook ($n = 18$)		Book ($n = 18$)	
	M	SD	M	SD
Pre-MMRS	64.28	13.19	55.44	10.44
Post-MMRS	66.83	9.22	56.94	10.24

Research Question 3: Are there descriptive differences between the Nook and book groups on journal entries, extended response comprehension questions, expressions of interest in the text, and field notes?

Findings Relevant to the Descriptive Analysis of Students' Journal Entries

Quantitative Content Analysis (Berelson, 1952; Krippendorff, 2004; Weber, 1990) revealed a difference between the Nook and book groups with respect to the free-write option and the use of in-text citations for the journal entry responses. Participants in both groups shared interesting reactions to the novel *Sounder*. The analysis of the journal

entries revealed that the participants' comments were insightful, concise, meaningful, and reflective. In analyzing the participants' responses, two differences were apparent. First, students in the Nook group chose the free-write option, rather than the option of responding to the researcher chosen prompt provided by the researcher, more often than the book group. For example, when responding to Journal Entry #1, five students (28%) in the Nook group (participants 5, 8, 10, 14, & 16) chose to free-write and respond to the novel in their own way, whereas only three students (17%) in the book group (participants 1, 2, & 5) chose the free-write option. Second, students in the Nook group directly quoted text within the context of their responses 35 times, while students in the book group quoted text 29 times. Further, participants in the Nook group referenced text in a general manner within the context of their journal entry responses a total of 23 times, while book group participants referenced text in a general manner a total of 15 times. In total, participants in the Nook group either directly quoted or referenced text 58 times, while participants in the book group either directly quoted or referenced text 44 times, which is a 14% total difference.

Descriptive Findings for Extended Response Comprehension Questions

There were two extended response comprehension questions:

1. Is this a sad book? Hopeful book? A dog story? Explain your answer in a paragraph (item #31)

2. Reread the quotation from page 90: *I have often heard it said that cowardice/Is the mother of cruelty, and I have found/by experience that malicious and inhuman/animosity and fierceness are usually/accompanied by weakness/Wolves*

and filthy bears, and all the baser beasts, fall/upon the dying. What does this

passage mean? Why did the author choose this particular quotation? How does

this quotation relate to the novel, *Sounder*? (item #32)

There were no major differences between the Nook and book groups on the rubric

scores for the extended responses (5 = full; 3 = met minimum criteria; 1 = no credit) (see

Table 4.3). For question 1 (item 31), 16 participants from the Nook group scored either a

3 or a 5 by answering the question correctly and 16 participants from the book group

scored either a 3 or a 5. For question 2 (item 32), 14 participants from the Nook group

scored either a 3 or a 5 by answering the question correctly, and 13 participants from the

book group scored either a 3 or a 5 to answer the questions correctly. Results of this

analysis indicated there were no differences between the Nook and book groups with

respect to the extended responses.

Table 4.3

Findings of Extended Response Comprehension Questions

Rubric Score	Nook			Book		
	5	3	1	5	3	1
Question 1	6	10	2	8	8	2
Question 2	8	6	4	6	7	5
Total	14	16	6	14	15	7

Descriptive Findings for Expressions of Interest in the Text

For question 1, a rating system was used, with a 10-8 range in score indicating

"high interest," a 7-5 range in score indicating "medium interest," and a 4-0 range in

score indicating "low interest." For question 2, comments were presented that supported participant responses from question 1. For question 3, a positive or negative scale was used, with a score of 1 signifying a positive response and a score of 0 signifying a negative response. Question 3 required a simple "yes" or "no" response. The three questions are listed below:

1. Of all of the reading you do, how well did you like this novel? (Circle 1 for lowest, and circle 10 for highest)

    1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10

2. Why did you give your book the rating above? Share a few comments with me about why you gave the rating you did.

3. Would you recommend reading this book?

For Interest Question 1, the students in both the Nook and book groups responded similarly, concerning how they liked the novel, with most of the students responding positively. In the Nook Group, 12 participants liked the novel (scoring in the positive range of 6-10), 2 were neutral (scoring in the middle range of 5) and 4 participants did not like the novel (scoring in the negative range of 1-4). These ranges are meant to show interest and differ from ranges presented above because the measurement includes a neutral category. In the book group, 13 participants liked the novel, 2 participants were neutral, and 3 participants did not like it.

For Interest Question 2, the students in both the Nook and book groups responded similarly, as expected, concerning their reasons for liking, being neutral, or not liking the novel. For Interest Question 2, from the Nook group, participants' who gave a positive

52

response mainly cited content. For example, one participant stated, "It's a hopeful book reaching for your tissues I love it very, very good book." And another stated, "It was very good and kept you guessing the whole time." Examples of negative responses from the Nook group included statements such as "I really couldn't get into the book because I don't like sad books," and "I did not like it because the father and the dog die. I don't like those books." In the book group, examples of positive responses mainly focused on content as well and included "It is a really good book and it showed me how people were treted [sic] and how delicate feelings can be to an animal," and "It really gives you a real feel for the people you love. Like if you lost your father, you would feel sorry about everything." Participants who gave a negative response mainly stated that the book was not what they expected. "It just wasn't one book that I would read," and "It was kinda short and just a blowout at the end of the book."

For Interest Question 3, the students in both the Nook and book groups responded similarly concerning recommending the book to others. In the Nook group, 13 participants reported they would recommend the novel, with one stating, "It is very suspenseful and has lots of details." Five participants said they would not recommend the novel, with one stating, "I just don't like it because it just really slow paced and I like fast pace action books." In the book group, 14 participants would recommend the novel. One participant stated, "I would because people need to learn about this sort of environment and life." While four participants indicated no recommendation, one participant stated, "I had trouble getting into it."

Research Question 4: What do respondent interviews reveal about students' reading of

moderately challenging text from a Nook and a book?

Qualitative Findings for Respondent Interviews

The Nook and book group participants responded to questions based on the respondent interviews. Participants are referred to as respondents to differentiate them from the total group. Purposeful analysis of interviewee responses were coded and grouped into categories using Qualitative Content Analysis (Guba & Lincoln, 1981; Holsti, 1969; Lincoln & Guba, 1985; Strauss & Corbin, 1990). See Appendix I: *Rules and Qualitative Worksheet for Respondent Interviews* for a complete list of rules used to code data. Data were organized according to codes, categories (for Nook and book experience), properties (combined group experience), and then an overarching theme developed. After reading through student responses, a total of 48 codes were identified, from there five final categories were identified, and one overarching category was identified. These five categories were: Context, Beliefs about Experience (Positive), Beliefs about Experience (Negative), Beliefs about the Novel and Journaling, and Beliefs about Authenticity. In Appendix I, a more extensive explanation of these categories is presented with definitions of categories; examples of the coding process are explained specifically in the *Context* sections for Nook and book groups. From purposeful analysis of these five categories, five properties were identified. The five properties were emotions, experiences, opinions, actions, and beliefs. Within these properties, dimensional ranges emerged. For example, in the category of *context* and the property of *emotions*, respondents identified whether they valued the modal reading experience. Through purposeful analysis of the data, it became clear that the overarching category of

Comfort was important. The concept of *Comfort* epitomized respondents' experiences. Findings from individual groups, Nook and book, are given below, followed by overall findings.

A qualitative analysis of the responses of the Nook group revealed that mode did matter to them when using the facilitative features of a Nook (i.e., highlighting, note taking, and dictionary), with the dictionary feature used more often than the other facilitative features. For example, all Nook group respondents used at least one of the facilitative features and stated they were helpful. In addition, one respondent from the respondent interview phase said reading on the Nook and using the facilitative features was fun. When asked what he or she liked best about reading on a Nook, Respondent 9 stated:

> It's really fun to read on it. I like reading a lot. And I thought that was pretty cool because I don't really have a Nook at home. So I thought that was pretty cool….You get to swipe the little pages and I've never really did that because you know I just read on hard books and paper books. So I thought that was fun.

Also, the majority of Nook respondents would recommend reading on a Nook to family and friends. And when respondents were asked if reading in either mode was different from reading a book, six of the Nook respondents replied yes, with Respondent 8 saying, "It's like, if you want to go back and read something, like a quote, you can just look it up instead of trying to find it." Ease and usefulness of the facilitative features were mentioned often in response to many of the respondent interview questions for the Nook group. In response to specific features used, eight respondents used highlighting, seven

used the note taking feature and nine used the dictionary. Although, ease of use was cited, three respondents stated that they preferred reading on a book and would not want to read on a Nook in the future. These same three respondents noted technology issues when using the Nook. For example, difficulty turning pages and the need to charge the Nook battery were worrisome factors for them.

A qualitative analysis of the book group revealed that mode mattered to them as well, but sometimes in different ways. Book group respondents also had concerns regarding technology. For example, Respondent 3 was positive in regards to reading a book, "It's like if you're reading from a Nook and the battery power ran out or like that, then you would have to worry about that. But from like a book, you wouldn't have to worry about it and it would be easier to go back and look at stuff up." Respondent 3 also noted that although he felt comfortable and preferred reading the book, he should be reading online "with technology being so up now-a-days, it kind of feels just like you're all alone almost."

In regards to the use of facilitative features, the majority of book respondents ($n = 7$) used highlighting. However, two of those respondents stated they highlighted, but it was not helpful for them. For example, Respondent 3 stated, "I used the highlighter maybe like twice" and went on to report that it was not helpful. In contrast, Respondent 8 used all three facilitative features and found them advantageous when writing journal responses stating, "I highlighted some words I didn't know. …I would go look them up in the dictionary…would get a sticky note and I would write the definition on that and stick it in there." This respondent devised a whole process for using all three facilitative

features in combination.

The majority of book respondents also stated many traditional values in response to their book reading experience, using comments like "comfortable," "reading from a journal that the author wrote," "falling in love with it[book]," and that they could "feel the tension of the book." However, Respondent 4 stated that he or she "can't focus without reading on a Kindle." Essentially, in both the Nook and book groups, these respondents had different experiences, but their personal experiences with technology seemed to dictate their preference.

Overall findings from the analysis of 18 respondent interviews indicated that reading mode did matter. Throughout the process of coding, one pattern that emerged was students' comments about their feelings, opinions, experiences, actions, and beliefs about reading using a Nook or traditional text. This category was labeled *Comfort*. Respondents, who reported that they enjoyed using technology, expressed greater comfort reading from the Nook. Respondents who felt more comfortable reading from books reported a number of reasons to support a high comfort level when reading a traditional book. Participants from both the Nook and book groups mentioned these features of the category, but did not always value each equally.

The five properties within the *Comfort* category documented how respondents viewed reading from Nooks and books. See Appendix I, *Rules and Qualitative Worksheet for Respondent Interviews*, for a list of rules used to code respondent interviews, a complete list of categories, examples of codes, and the properties of each category. Frequency patterns were compiled to create a bigger picture of the data as a whole.

Figure 4.1 is a graphic organizer showing how the properties were organized and

analyzed, and provides examples from respondents. The properties are noted below in

Figure 4.1.

Figure 4.1. Five Key Properties

1. Participants identify positive and/or negative *emotions* toward Nook and book reading
2. Participants identify positive and/or negative *experiences* with Nook and book reading
3. Participants identify positive and/or negative *opinions* with Nook and book reading
4. Participants identify positive and/or negative *actions* with using the facilitative features with Nook and book
5. Participants identify positive and/or negative *beliefs* regarding their experiences with Nook and book reading and/or modal reading

Note. Emotions, experiences, opinions, actions, and beliefs are the key properties.

Respondents in the Nook and book group responded with a range of emotions

from valuing both modes of reading to not valuing either mode. In the Nook group,

students felt there was value in reading with technology due to the level of convenience.

For example, Nook Respondent 2 stated, "I think it was easier because you got to look up

words without getting a dictionary out." Whereas, book Respondent 2 stated, "I really

liked reading from the traditional book because it just gives you the feel of everything."

That same respondent later went on to say that reading from a book "…just makes you

feel like you're reading from a journal that the author wrote, not just something off the

shelf." Although these two responses are found on separate ends of the value continuum,

14 out of 18 respondents (77%) from both the Nook and the book groups valued reading

on the Nook due to the convenience of using the facilitative features of digital devices.

Ease of access to the facilitative features seemed to foster positive experiences, or the idea of positive experiences, in using the Nook to read. Four of the nine (44%) Nook group readers reported problems and/or issues with reading the Nooks, like pages flipping too quickly or charging times taking too long. Six Nook group respondents reported a positive experience reading on the Nook (and would recommend reading on the Nook to friends and family members) and three book group respondents said that they preferred reading using technology (two of the respondents having used ereaders in the past). That is, 50% of all respondents, regardless of group assignment, indicated they preferred reading on Nooks.

The book reader group held strong experiences and opinions regarding their attachment to the traditional book. Two of the nine book group respondents reported not using the facilitative features of the book; whereas, all nine respondents for the Nook group reported using the facilitative features due to the "ease of use" (Nook Respondents 1, 2, 4, & 6) as one of the major influences in using the features. For example, Nook Respondent 9 said he/she liked "reading the Nook better because its' [sic] easier to read. And you don't have to look up in the dictionary as much because you could just tap the word." Respondents did not make the connection that when they "tap on the word" for a definition, it was not closely associated with looking up a word in the dictionary. Tapping on the word may have seemed less laborious than looking up a word because respondents did not have to leave the text to find the definition.

The final property, Beliefs, which related to participants' modal literacy experiences, revealed how students appreciated (or did not appreciate) their experiences.

Although many respondents agreed that reading on the Nook was easier and that the Nook group participants used the facilitative features more, four Nook group respondents and all nine-book group respondents stated their preference for reading from a traditional book. That is, 13 of 18 respondents (72%) believed that traditional book reading is still a useful and viable way to gain knowledge (i.e., read). Perhaps, Respondent 3 from the book group said it best when asked about his book reading experience.

> The only thing I liked about it [reading the book] is that it just feels kind of more like, I'm trying to think of the right word here. Kind of like used to it, like if you're reading from a Nook and like it's a battery powered ran out or something like that, then you would have to worry about that. But from like a book, you wouldn't have to worry about it and it would be easier to go back and look at stuff I would, in my opinion. I'm just comfortable with it.

> Furthermore, emotive responses related to comfort began to emerge as a common theme between both Nook and book groups. Below are quotations from respondents regarding their emotional experiences while reading using a Nook or a book.

Book group:

> "In a book, you just fall in love with it. It makes you feel like you're reading from a journal that the author wrote, not just something off the shelf" (Respondent 2).

> "I would just go for a book. I'm more comfortable with a book" (Respondent 3).

Nook group:

"It's really fun to read on it. I like reading a lot. And I thought that was pretty cool because I don't really have a Nook at home. So I thought that was pretty cool" (Respondent 9).

"Yeah, it's kind of like a feeling cause when I read on the Nook like I can understand things I like, I don't know if it has different wordings or anything, but it's easier for me to understand" (Respondent 6).

"I like reading from the Nook because you really don't do the things you do on a Nook with a regular book" (Respondent 1).

In conclusion, the respondent interview data revealed a variety of interesting information. Regardless of strides in digital reading use, students who do not have regular experiences with that type of technology still reported being comfortable as a factor in their individual reading experiences; in this case, that comfortable feeling comes from reading books. However, in understanding participants' responses regarding use of the facilitative features, highlighting, note taking and the dictionary function, all participants in the Nook group used at least one of them purposefully, while not all in the book group did. Ease of use was considered a key factor in whether the facilitative features were used. Therefore, mode did matter to both Nook and book group respondents in regards to highlighting, note taking, and using the dictionary.

Findings from Field Notes

Time was a significant factor in the Nook group's ability to initiate the reading task in a timelier manner and students showed more on-task behaviors as evidenced by the number of times they used the facilitative features, which included highlighting, note taking, and using the dictionary. The researcher also recorded the time it took for readers in both groups to begin. On-task behavior was also observed. The Nook group appeared to be more on-task at the beginning of the reading time than was the book group as evidenced by their relevant questions and steadily reading throughout the study.

Data for reading times were collected through researcher field notes observations. The Nook group showed on-task behaviors an average of 3 minutes longer than the book group. Student behaviors were observed and timed over a 10-day period with an average on-task time of 3:03 minutes more per 25-minute session.

Summary

Chapter Four has provided an overview of the results of this study on student comprehension and motivation while reading either on a Nook or on a book. Chapter Five will address future implications of the study.

CHAPTER FIVE

CONCLUSIONS, LIMITATIONS, AND IMPLICATIONS

Chapter Five includes (a) conclusions, (b) limitations, and (c) implications for theory, practice, and future research.

Conclusions

The purpose of this study was to investigate sixth-grade students' reading comprehension and motivation while reading moderately challenging text under two conditions: Nook and book. Students in both the Nook and book groups received instruction on highlighting, note taking, and dictionary usage to facilitate comprehension. Following the reading of the text, *Sounder*, on either the Nook or the book, students responded to a multiple choice comprehension assessment, journal entries, and a motivation assessment. Field notes were taken. Qualitative data were then collected in the form of respondent interviews to further explore participants' experiences while reading under the two conditions.

The purpose of this research was to investigate sixth-grade students' comprehension of a moderately challenging text while reading in two different modes, from a Nook and from a book. The following questions guided the study:

1. Are there statistically significant differences between the Nook and book groups' overall comprehension? Are there statistically significant differences between the groups' responses to literal and inferential comprehension questions, specifically?

2. Are there statistically significant differences between the Nook and book groups on the Modality and Motivation to Read Survey (MMRS) scores?

3. Are there descriptive differences between the Nook and book groups on journal entries, extended response comprehension questions, expressions of interest in the text, and field notes?

4. What do respondent interviews reveal about students' reading of moderately challenging text from a Nook and a book?

The most notable finding from this study was that students in the Nook group outperformed students in the book group on overall comprehension after reading a moderately challenging text. More specifically, students in the Nook group outperformed students in the book group on the inferential comprehension questions. There was no statistically significant difference in literal comprehension scores. The major difference between the reading groups was that students in the Nook group read from a digital reader where the facilitative features of highlighting, note taking, and dictionary usage were immediately accessible. The book group also had access to these facilitative features in the traditional format of highlighter pens, sticky notes, and dictionaries. One explanation for superior performance of the Nook group on higher-level comprehension assessment may be that the immediate access of these features, in the digital format, supported the processing of information. Thus, the immediate access of digital features such as highlighting, note taking, and the dictionary may provide a buffering effect when students read moderately challenging text. Leu et al. (in press) suggested "new online technologies continuously appear for literacy that redefine reading, writing, communication, and learning, sometimes on a daily basis." In this study, the immediate

access to the facilitative features of the Nook, may have aided in comprehension of moderately challenging text for the Nook group.

Field notes revealed that participants in the Nook group spent more time on-task than participants in the book group. The Nook group ended up being on-task an average of 3 minutes more per day. The Nook group participants came into class, began the task, and focused faster than the book group according to field notes documentation. While writing in journals, Nook group participants used quotations from the text more often than the book group, which may be a reflection of the immediate link to the highlighting, note taking, and dictionary features of the Nook. These findings contrast with those of Schugar, Schugar, and Penny (2011), where the traditional text group used the reading skills of highlighting, book marking, and text annotation more often than the ereader group. However, the participants in Schugar et al.'s study were college-aged students in a general-writing class. Interestingly, Nook group participants chose the free-write option over responding to the researcher's prompt more often than participants in the book group. This finding requires further investigation. One reason the facilitative features of highlighting, note taking, and dictionary usage were selected for use in this study was that they were immediately accessible and did not take the reader away from the text. The findings are in keeping with the work of Larson (2010) who reported that students who used ereader tools were engaged with the text more often, comprehending the text more deeply. For example, one student struggled with understanding the plot of a story and the notes feature helped him to grasp that concept.

There were no statistically significant gains in either the Nook group or the book

group in scores on the Modality and Motivation to Read Survey (MMRS) following the intervention. Neither group showed significant changes in the MMRS from pre to post intervention. Further inquiry is needed to explore motivation factors for students reading moderately challenging text in either mode.

The descriptive data revealed two distinctions in participants' journal entry responses. Nook group participants, first, chose the free-write option and second, used quotations more often in their journal entry responses than those reading books. Choosing the free-write option may be an indicator that participants felt more in control of their own learning or that they did not want to address the book-related writing prompt. This finding requires further inquiry to understand its importance within the context of using the facilitative features of digital text. Also, the higher number of participants in the Nook group quoting text could indicate that the ease of use of the digital facilitative features enhanced text comprehension, which is in keeping with Larson's (2009) study. She found that when students used the notes features on their ereaders, they were more interested in writing about their thoughts regarding their reading.

Participants' responses on the extended response questions, which required an essay-type answer, and expressions of interest were similar. The majority of participants in both groups liked the novel and cited the content of the story, that it was about a dog or a boy and his dog, as an example of why they liked *Sounder*. Similarities in negative responses mainly focused on not liking the ending of the novel. Further, the majority of participants from both groups would recommend the novel to others. These responses to the novel could reflect particular opinions regarding classic texts and moderately

challenging reading done within the classroom context. The similarity in findings for the extended response questions could indicate that participants were able to process and relate to overall aspects of the novel. Interest questions targeted personal opinions about participants' interest in the novel. While students' interest in any particular book can be expected to vary, most participants in this study reported they liked the novel and would recommend it to others. The number of quotations used by the Nook group increased on journal entry responses but no major differences were found on the two extended comprehension responses. Participants' experience with the immediate access to the facilitative features of the Nook may account for the group's tendency to quote from the text more frequently.

The major finding of this study was that the digital features of highlighting note taking, and dictionary usage might have facilitated participants' internal comprehension of moderately challenging text. Findings from the analysis of 18 respondent interviews (9 from each group) and field notes provide additional insights about reading mode. Fifty percent of the interviewees expressed a preference for reading from the traditional text rather than reading from a digital text. For the Nook group, over half of the respondents would recommend reading on a digital device, with one respondent stating that it was easier to look up quotations on the Nook than with a book. Those who preferred the Nook reported that they liked the convenience of the Nook; for example, they could read anywhere and download many books. Participants in the Nook group also stated that they liked using the facilitative features, particularly the highlighting feature and enjoyed the ability to change the settings if needed. Most of the book group respondents enjoyed

reading the book. Their reasons included the ability to (a) go back easier to check for understanding, (b) feel "the tension of the book better" (Respondent 2), (c) not worry about batteries, and (d) feel more "comfortable with it" (Respondent 4). However, they did not read on a Nook during this study, so this factor may have affected responses.

The Nook and book group participants had varying experiences while reading, but it was their personal experiences with reading on digital devices that seemed to dictate their preference. An overarching theme of student modality preference appeared from the respondent interviews. The theme centered on the concept of comfort. Participants, who enjoyed reading digitally, described enjoying the Nook reading experience. Participants who reported that they were more comfortable reading from books told of reasons to support traditional book reading. Many participants from both groups reported that online reading was important, but voiced the opinion that they were still closely connected to the traditional book experience, citing issues with technology as one of the determining factors in preferring traditional book reading. For example, one respondent was worried he would forget to charge the Nook if he read on it frequently. A total of two respondents, one from the Nook group and one from the book group, expressed a belief that reading from traditional books was more of an authentic experience than reading from the Nook. In conclusion, the major finding from the respondent interviews was that students who do not have regular experiences with digital reading still prefer the comfortable aspects of reading from traditional books and expressed concerns about using digital devices to read regularly.

Another finding of interest gleaned from the field notes was that Nook group participants were on-task approximately 3 minutes longer each day due to getting started at a faster rate. The field notes reflected that the Nook group began the task more efficiently and remained on-task longer than the book group. During meetings with the classroom teachers, they noted that the Nook group participants began the task immediately, whereas participants in the book group took longer to organize their materials (books, highlighters, sticky notes, and dictionaries). Getting on-task in a more efficient way potentially led to a total increased reading time of thirty minutes over a two-week period and may be related to higher comprehension scores for the Nook group. These findings suggest that these facilitative supports of the Nook may foster deeper comprehension, particularly with moderately challenging text.

Looking across all data sources, participants who read on Nooks had higher total comprehension scores, specifically scoring higher on inferential comprehension questions. When writing journal entries, Nook group participants quoted text and chose the free-write option more frequently than the book group. Analysis of field notes revealed that participants who read on the Nooks spent more time on-task; an average of 3 minutes longer per day, and students in the book group took more time gathering and organizing their materials, which may have been a distracting process.

In conclusion, "[t]he ultimate goal of reading instruction at the secondary level is comprehension—gaining meaning from text" (Edmonds et al., 2009). Interaction occurs through a mix of the reader, the text, and the activity creating comprehension (Edmonds et al., 2009). This study took place within the context of a typical classroom where

students read a text assigned by the teacher. The overarching goal of this study was to investigate sixth-grade students' reading comprehension and motivation while reading moderately challenging text under two conditions: Nook and book. Based on the quantitative data, the major finding for this study was the Nook group outperformed the book group on the inferential comprehension assessment. There was no statistically significant difference between the two groups on the motivation assessment. Qualitative respondent interviews revealed that familiarity and comfort were important in terms of how respondents reported their experiences, and Nook group participants reported using the facilitative features more frequently. As the data sources converged (Johnson, Onwuegbuzie, & Turner, 2007), findings suggest that having positive prior experiences with digital reading devices influenced respondents' description of their reading experience on the Nook. For example, over half the Nook group respondents reported that comfort was a factor in using digital devices to read, and six Nook group respondents who recommended reading on a Nook, all had prior digital reading experiences. Those students, who did not have much interaction with digital reading devices prior to the study, reported they were not as comfortable with reading on a Nook. Respondents from the book group reported many aspects of book reading that they found comfortable, for example, turning pages, a feeling that reading a traditional book was a more real experience, and not having to worry about issues with the Nook not being charged or forgetting to charge it. These findings are in keeping with Larson (2009), who found students needed an adjustment period to aid in their familiarity with the facilitative features of ereaders.

Limitations

Findings from this study are based on a small sample of sixth-grade students who read one text, *Sounder*, in one school environment, in one school district in the Southeastern United States. Findings are limited to the use of three specific digital features: highlighting, note taking, and the dictionary. These limitations are a threat to external validity. Replication is needed to determine that these results are generalizable to other populations, other texts, and other digital features.

Students in this study were assigned a specific novel because this investigation sought to understand how students read moderately challenging text assigned by the teacher. This reflects typical classroom experiences (teacher assigned text), as well as standardized testing environments. This study was limited to one narrative text and further studies are needed using a range of texts and genres.

In this study, students were provided with instruction in highlighting, note taking, and dictionary usage because these facilitative features could be made available to both the Nook and book group, with the difference being the immediate accessibility of the digital features for students in the Nook group.

Finally, as a teacher and researcher, I am a strong advocate for adolescents' use of digital reading devices both within the classroom context and beyond. Therefore, researcher bias was another possible limitation of this study. I am conscious of this bias and regulated this bias by collecting multiple forms of data, engaging in reflexivity, using standardized directions for this study and delivering those directions as uniformly as

possible across groups, Nook and book. Weekly meetings with the two classroom teachers and field notes were used to evaluate the consistency of each classroom context.

Implications for Theory, Practice, and Future Research

According to new literacies theory (Coiro, 2003; Leu, Zawilinski, Forzani, & Timbrell, in press; Leu, Kinzer, Coiro, & Cammack, 2004; McEneaney, 2011), the continuously changing learning environment must include the shifting nature of what it means to be literate (Garton & Wellman, 1995; Leu, 2000; McKenna et al., 1999; Reinking, 1995 & 1998). The role of digital devices and reading comprehension must be studied further to examine the literacy learning connections made by readers (Garton & Wellman, 1995). As a result of this study, implications for new literacies theory support already accepted ideas, specifically that the relationship between literacy and technology is transactional (Leu et al., 2004). Of specific theoretical importance for this study is the transaction that takes place while reading using the facilitative features of the Nook. The immediate accessibility of the facilitative features may impact comprehension and aid students' ability to cite specific evidence from the text to support their claims. The findings from this study call for further research to better understand the role of digital reading within the context of new literacies theory and its impact on students' comprehension.

This study also has implications for practice. The findings from this study suggested that sixth-grade readers might have stronger comprehension when reading from Nooks. One potential explanation for the Nook group outperforming the book group on reading comprehension may be that the immediate access of the facilitative digital

features supported comprehension. While the findings of this study support the use of digital Nooks in the classroom, there is recognition of the digital divide (Pacino & Noftle, 2011; Van Dijk, 2006) that exists in our country. In rural and less financially advantaged districts, digital reading devices may not be readily accessible. Americans with higher incomes use the Internet in greater numbers (Jansen, 2010). The average income for participants in this study is approximately $34,200.00 (2000 U.S. Census). Therefore, using digital readers may provide districts and students in rural areas the ability to affordably incorporate 21st century literacies into their classrooms. Nooks retail for approximately $149.00 each, and could serve as a viable option for families and schools to integrate digital readers into the lives of students. Students in school districts lacking access to technology have fewer skills for navigating the new literacy world and could end up "doubly disadvantaged" because their schools "do not prepare them for the new literacies of online reading comprehension" (Leu et al., 2011, p. 11).

When students do not read more challenging texts (CCSS, 2012) and if they are not exposed to digital reading experiences (with supportive and accessible facilitative features), the question arises as to whether schools are preparing 21st century learners to navigate the world around them. More studies are needed to explore how ereaders might facilitate students' reading of challenging text. This study was designed to extend previous research focusing on literacy education while profiling the similarities and differences of digital and traditional reading experiences.

Studies investigating students' use of a variety of text modalities at varying grade levels are needed. The literature reviewed for this study revealed that ereader and

traditional text research was still limited, especially in the middle grades. Although there are studies of students at the middle grades level (Miranda et al., 2011; Roswell & Burke, 2009), much of the research has been conducted in either the early grades (Larson, 2009, 2010) or with college-aged students (Kemp, Lutz, & Nurnberger, 2012; Schugar, Schugar, & Penny, 2011; Siebenbruner, 2011) with limited focus on middle grade students. More studies on the potential of the facilitative features of digital reading are needed, focusing particularly on how adolescent readers comprehend moderately challenging text.

Due to the rapidly changing nature of new literacies, and how educators teach students in this continuously changing environment, what it means to be literate often changes simultaneously with changes in technology (Coiro, 2003). According to Leu (2000), change "defines the nature of literacy in an information age" (p. 743). The teachers in this study reported that students mainly read from paperbound texts throughout the school year. Some of the participants reported that they have rarely read on a digital device. Future research is needed on how to enhance learning using the facilitative features of digital reading devices.

The major conclusion from this study was that Nooks and the immediate availability of facilitative features, highlighting, note taking, and dictionary usage, appear to facilitate the comprehension of moderately challenging text. Further, the way in which the participants in the Nook group began the reading task immediately, as opposed to the extended time needed for the book group participants to begin reading, warrants further investigation. Nook group participants also had a higher number of quotations used

during the journal entry phase, which may also indicate how the immediate access to the facilitative features on the Nook has the potential to impact comprehension and help students support their claims while writing. Further studies on this topic have the potential to shine light on the Nook and book reading processes.

The immediate and easy access to the facilitative features of the digital reader appears to improve comprehension of moderately challenging text. If the immediate and easy access to the facilitative features provided by digital reading improves inferential comprehension, only those with access to a digital device have the potential to reap those benefits. This study began with a reference to a former student, Will. He did not choose to read, he was a reluctant reader. However, he was excited about reading when he began reading on a digital device. He became a more enthusiastic reader both in- and out-of-school. His father had the means to purchase an ereader, which allowed Will the experience of reading on a digital device. What is in store for students, parents, and schools who lack the funds to purchase such devices? As educators, researchers, and stakeholders, our responsibility lies in supporting the use of and providing accessible digital devices that support comprehension of moderately challenging text, even for those in economically disadvantaged areas.

APPENDICES

Appendix A

Research Questions

This study employed a Matched Pairs Design with two treatment groups (Nook group; book group).

Research Questions

Overarching Research Question: How do sixth-grade students comprehend a moderately challenging text while reading in two different modes, from a Nook and from a book?

1. Are there statistically significant differences between the Nook and book groups' overall comprehension? Are there statistically significant differences between the groups' responses to literal and inferential comprehension questions, specifically?

2. Are there statistically significant differences between the Nook and book groups on the Modality and Motivation to Read Survey (MMRS) scores?

3. Are there descriptive differences between the Nook and book groups on journal entries, extended response comprehension questions, expressions of interest in the text, and field notes?

4. What do respondent interviews reveal about students' reading of moderately challenging text from a Nook and a book?

Appendix B

Research Questions Aligned with Assessments

Pre-Intervention Assessment for Matched Pairs Design: Students were matched on the basis of their performance on the MAP test.

Research Question #1 - Assessment Instrument: A post-assessment of literal and inferential comprehension questions was used to determine reading comprehension scores for each text.

Research Question #2 - Assessment Instrument: A researcher-developed instrument, the Modality and Motivation to Read Survey, (pre- and post-) was used to determine differences between the Nook and book groups.

Research Question #3 - Assessment Instrument: Quantitative Content Analysis (Berelson, 1952; Krippendorff, 2004; Weber, 1990) was used to analyze the higher level thinking as reflected in student responses during twice-weekly journal entries, extended response comprehension questions, expressions of interest in the text, and field notes for the Nook and book groups.

Research Question #4 - Assessment Instrument: Qualitative Content Analysis (Strauss & Corbin, 1990) was used to analyze the respondent interviews. Approximately 40% of the students were randomly selected to respond to respondent interviews.

Procedures from the Student Perspective

Pre-Treatment:

1. Securing Permission: Upon IRB Approval- Students, Parents, and Teachers/Administrators filled out permission slips and returned.

2. Data were collected for Matched Pairs Design: Spring MAP Scores were reviewed to further corroborate the matched-pairs design model.

3. Pre-Intervention Inventory was given regarding student familiarity will texts/movie versions used for this study and their familiarity with Nooks.

4. Assigned students to Nook and book groups.

5. Pre- and Post-Modality and Motivation to Read Survey administered.

6. Nook Group- Students were taught three supportive features for reading digital text:

   a. Dictionary Feature

   b. Highlighting Feature (can help with online discussion)

   c. Notes Feature (can help with online discussion and comprehension)

7. Book Group- Students were taught three supportive features for reading text:

   a. Dictionary Feature

   b. Highlighting Feature (can help with online discussion

   c. Notes Feature (can help with online discussion and comprehension)

   8. Table C.1

Table C.1

Study Table with Text and Participants

Assignment	Nook Group	Book Group
Sounder	18 participants	18 participants

Intervention:

A short introduction was provided for the novel, using approximately 35 words, would peak interest, and leave readers hanging. Example: *Sounder* is the story of a boy and his African-American family who sharecrop the land during the late 19th century. The boy's life changes in an instant when his father is caught stealing a ham to feed his family. The story is a powerful tale of survival and perseverance in the face of racism and brutality. Set in the 19th-century South, *Sounder* is the story of a poor African American boy's struggle to carry on when his father is jailed. The boy's father steals a ham to feed his hungry family, and a few days later an angry sheriff and his deputies come to arrest the father. In an effort to protect his master, the family's coon dog Sounder races after the deputies taking his master away… (Scholastic Inc., 2013, para. 1)

Plight of the sharecroppers

While the Little House books examined the plight of the pioneer, *Sounder* addressed the plight of the sharecropper. Sharecropping began after the American Civil War. Once slavery was abolished, anyone could theoretically own the land, but in reality, African Americans rarely did.

1. Large plantations owned by whites were subdivided into small units and rented out to African Americans for a portion of the crops. Many sharecroppers were forced into a cycle of debt and poverty as they pledged next year's crops to pay for this year's supplies. (Dewan, n.d.)

2. Students were given text to read—specify time to read (approximately 25 minutes of reading time).

3. Students twice weekly wrote in their personal journals about their impressions and reactions of the text read. Journal prompts were used as examples for students. However, they did not have to use them if they would like to write about their personal impressions. Researcher said: I will give you general writing prompts to use as a journal topic if needed. Some of these prompts included: "The boy enjoys when his mother tells him stories from the Bible, because the stories take away the "night loneliness." What do you think he means by this? How do these stories help the boy? Explain." "After his father is taken away, the boy seems more concerned about his dog than his own father. Do you think he really cares more about his dog than his own father? Why does he act this way?" However, if you have your own ideas about what you would like to write, please use them. I am interested in what you have to say and think.

ASSESSMENT:

4. Both groups took a Post-Assessment Literal and Inferential comprehension test after completion of each book. Tests were used from published teacher guides (Scholastic) and four literacy research experts established literal/inferential

content. Test included 30 multiple-choice questions: 15 literal and 15 inferential.

Table C.2 below illustrates the procedural schedule for reading of text and assessment phases.

Table C.2

Procedural Schedule for Reading of Text and Assessment Phases

Week(s)	Text	Nook	Book
1	*Sounder*	18 participants, 2 JE	18 participants, 2 JE
2	*Sounder*	Same 18 participants, 2 JE	Same 18 participants, 2 JE
3	*Sounder*	Comprehension Test	Comprehension Test
4-6		Respondent Interviews Modality and Motivation to Read Survey (Pre- and post-test given to both groups)	

Note. 2 JE indicates 2 Journal Entries per week

5. After reading books and completing the comprehension assessment, students completed the Post-Modality and Motivation to Read Survey.

6. During the respondent interview phase, approximately 40% of students were purposefully and then randomly selected to complete the respondent interviews based on comprehension test scores from students in each group (Nook and book).

Appendix D

Pre-Intervention Questions to Assess Students' Experiences with Novels

Questions About Novels

Name: _____

Teacher:_____

Please answer the following questions to the best of your ability by circling the best answer.

Have you read or seen the film adaptation (movie) of any of the following books.

  1. Have you read the book or seen the film adaptation of *Shiloh*?
     no   /   yes, read it   /   yes, saw movie   /   yes, read and saw movie

  2. Have you read the book or seen the film adaptation of The *Red Badge of Courage*?
     no   /   yes, read it   /   yes, saw movie   /   yes, read and saw movie

  3. Have you read the book or seen the film adaptation of *The Hunger Games*?
     no   /   yes, read it   /   yes, saw movie   /   yes, read and saw movie

  4. Have you read the book or seen the film adaptation of *Sounder*?
     no   /   yes, read it   /   yes, saw movie   /   yes, read and saw movie

  5. Have you read the book or seen the film adaptation of *The Stone Fox*?
     no   /   yes, read it   /   yes, saw movie   /   yes, read and saw movie

**Respondent Interview Questions for Middle School Project
Nook Group**

Directions: Students will be asked questions related to their mode of reading. As reinforcement, the researcher will identify each student's mode of reading, Nook or book, and ask questions according to the modality used.

Student Name: _____

Mode of Reading Used: _____

1. How did reading the Nook compare to reading a book for you? (What do you think are the advantages or disadvantages of reading on a Nook as compared to a book?)

2. What, if anything, did you like best about reading on a Nook?

3. Would you recommend reading on the Nook, as opposed to a book, to a friend/family member? Why/Why not?

4. Do you think that reading on a Nook is different than reading on a book? If yes, tell me how? Describe/Explain.

5. What do you like/dislike about reading from the Nook?

6. Are there some disadvantages from reading from a Nook as opposed to a book?

7. How did you feel about writing in your journal? (Prompts: Was it fun/Not fun/Interesting/A valuable experience/Did you like it? Why?)

8. While you read the book on the Nook, did you do anything differently than you would have on a traditional book? Did you move through the book the same way that you normally read?

9. How did you look up words? (Use as prompt—only if they need help: If yes, did you think the dictionary was helpful?)

10. Did you use any of the tools on the Nook? Which ones did you use? Were they helpful or not? If no, why not?

    a. How did you highlight words? Explain.

    b. How did you use notes? Explain.

    c. How did you use the dictionary? Explain.

11. Did you change any settings on the Nook? When you use your Nook, how do you set it up to make it more comfortable? How does that help you—if it does? (background, font, lighting)

12. Have you experienced any (technical for Nook) issues while using the Nook? If yes, explain.

13. What are some key ideas you took away from reading *Sounder*?

14. If I do this research again, is there anything you would change to make it more interesting?

15. Have you read from a Nook before this experience? Please explain.

Respondent Interview Questions for Middle School Project
Book Group

Directions: Students will be asked questions related to their mode of reading. As reinforcement, the researcher will identify each student's mode of reading, Nook or book, and ask questions according to modality used. Questions are not related to specifically reading Sounder, just to reading from a book (traditional book).

Student Name: _____

Mode of Reading Used: _____

1. What did you like best about reading from a traditional book? What do you like least about reading from a book?

2. While you read the book, did you do anything differently than you would have when reading on the computer/digital device? Did you move through the book the same way that you normally read?

3. Have you ever read from an ereader (Nook, Kindle, iPad…)? Do you think that any of the things you like least? Follow-up: I want you to tell me about how reading a book is different than reading on a computer/digital device (like an eReader, Nook)? Are there some advantages/disadvantages about reading from a book as opposed to a computer/digital device?

4. What would make your book reading experience better/more fun? Explain.

5. Talk to me about how you felt about writing in your journal about what you read? (Was it fun/Not fun/Interesting/A valuable experience/Did you like it? Why?)

6. Did you use any of the tools I taught you for the book? Which ones did you use? Were they helpful or not? How so?   If no, why not?

   a. How did you highlight words? Explain.

   b. How did you use notes? Explain.

c. How did you use the dictionary? Explain.

7. What are some key ideas you took away from reading *Sounder*?

8. If I do this research again, is there anything you would change to make it more interesting?

Cover Page:
Modality and Motivation to Read Survey

Verbal Directions for Book and Nook Groups Only—was printed on student questionnaire:

Please respond to the statements below using the best possible response for you… "I am going to be asking you to decide whether you agree or disagree with statements about the reading you've done. There are no right or wrong answers. The best answer is what's true for you. Circle the answer that fits you best and be as honest as possible." I will read the statements and responses aloud...go ahead and respond to the below to the best of your ability.

Reading Survey (MMBG)

Name:_____

1. I understand almost everything I read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

2. When I choose a book to read, I usually choose a book that is easy to read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

3. Reading from a book is fun.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

4. When I choose a book to read, I usually choose a book that is moderately (sort of) hard to read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

5. I do not like writing about my ideas after reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

6. When I pick a book to read, I usually pick a book that is really hard (very challenging) to read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

7. I am a very good reader.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

8. Reading is a fun way to spend time.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

9. I sometimes understand ideas that I read about.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

10. I think reading is a crummy way to spend time.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

11. I am a good reader.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

12. I use the dictionary while reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

13. I think reading is boring.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

14. I rarely highlight words and sentences while reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

15. I take notes while reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

16. I read from paperback books.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

17. I read from a Nook/ereader.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

18. I do not like reading paperback books.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

19. I enjoy reading on digital devices.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

20. Reading from a Nook is not that much fun.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

Reading Survey (MMNG)

Name:_____

1. I am a good reader.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

2. I use the dictionary while reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

3. I think reading is boring.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

4. I rarely highlight words and sentences while reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly

Disagree

5. I take notes while reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

6. I read from paperback books.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly

Disagree

7. I read from a Nook/ereader.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

8. I don't like from reading paperback books.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

9. I enjoy reading on digital devices.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

10. Reading on a Nook is not that much fun.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

11. I understand almost everything I read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

12. When I choose a book to read, I usually choose a book that is easy to read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

13. Reading a book is fun.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

14. When I choose a book to read, I usually choose a book that is moderately (sort of) hard to read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

15. I do not like writing about my ideas after reading.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

16. When I pick a book to read, I usually pick a book that is really hard (very challenging) to read.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

17. I am a very good reader.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

18. Reading is a fun way to spend time.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

19. I sometimes understand ideas that I read about.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

20. I think reading is a crummy way to spend time.

Strongly Agree / Agree / Somewhat Agree / Somewhat Disagree / Disagree / Strongly Disagree

Sample Comprehension Test

SOUNDER TEST

NAME:_____

GROUP (Nook or Book):_____

Directions: Read each question carefully. Circle the letter of the choice that best answers each question.

1. Who wrote this book?

      a. William H. Armstrong   b. Wilson Rawls   c. Scott O'Dell

2. To earn extra money, the boy's mother _____.

      a. raised coon dogs

      b. shelled walnuts

      c. sewed clothes

3. The boy's mother sells walnut meat. Why is that important?

      a. It tastes good and people like it

      b. She is willing to help the family make money

      c. She thinks they have good nutritional value

4. What does the boy imagine as revenge against the deputy sheriff and the red-faced man?

      a. drag them behind a wagon for revenge

      b. go to town with them and tell the sheriff's boss

      c. not talk to them again

5. One day, the boy found a big book in the trash, but _____.

     a. he had to put it back

     b. someone took it away from him

     c. he couldn't understand it

6. After he was shot, Sounder never barked until _____.

     a. the vet operated on him

     b. the boy took him hunting again

     c. his master returned home

7. The boy put Sounder's _____ under his pillow to wish on.

     a. ear   b. picture   c. leather leash

8. When he wasn't needed to work the fields, the boy _____.

     a. tried to find his father

     b. would read by the light from the wood stove

     c. hunt coons

9. Who showed the boy compassion and understanding?

     a. the judge   b. the teacher   c. the sheriff

10. Sounder was _____.

     a. a purebred redbone

     b. a part redbone and part bulldog

     c. a golden retriever

11. Why is the schoolmaster a "powerful good friend"?

     a. The schoolmaster is nice

     b. The schoolmaster gave him a place to sleep and read and talked to him

c. The schoolmaster gave him money to help the boy's family

12. After his father was arrested, the boy's mother took the ham and ____.

    a. buried it   b. returned it   c. burned it

13. The boy went through trash barrels to find _____.

    a. clothes to take home

    b. food to barter

    c. newspapers to practice his reading

14. What does "grieve your father" mean?

    a. Feel sorry for him as though he has died

    b. Take him extra things while he is in jail

    c. Be happy for him because he will be taken care of now

15. Who helped the boy when he injured his hand?

    a. the preacher   b. the teacher   c. a lawyer

16. The boy's father was crippled from a _____.

    a. beating   b. wagon wreck   c. dynamite blast

17. What did the boy's patches on his overalls mean?

    a. The family was poor

    b. The family used all of the clothes they had

    c. The boy did not like to wear new clothes

18. The boy's father was arrested for stealing _____.

    a. a horse   b. money   c. a ham

19. Why do you think that the boy's mother did not cook any pork sausages for

breakfast?

a. They didn't have pork sausages

b. She doesn't like pork sausages

c. Pork sausage was for good times and this was not a good time.

20. Sounder was _____.

a. shot

b. run over by a wagon

c. caught in a steel trap

21. How does the boy know Sounder will die before he returns from school?

a. His master has died and Sounder has lost his will to live

b. Sounder's bark is just not the same as it normally is

c. Sounder is really, really sick and the family cannot afford to take him to the vet

22. Sounder completely lost _____.

a. an eye   b. his tail   c. both ears

23. Why is Sounder well named?

a. He makes a lot of noise

b. He has a unique sounding bark

c. He is quiet

24. The boy disliked curtains on windows because he _____.

a. was afraid there were eyes looking out at him

b. thought they would catch on fire

c. thought they were only for rich people

25. What does, "The Lord teaches the old to lose" mean?

      a. you must be a good sport

      b. Animals and people die—we lose those we love

      c. It's better to lose well than be upset

26. What do curtains mean to the boy?

      a. Richer people have curtains

      b. Poor people have curtains

      c. The boy doesn't like curtains, but his mother does

27. How has the boy's role changed from the beginning of the book?

      a. he is older and

      b. he likes to play more

      c. he has matured and has learned about cruelty

28. What has happened to the clothesline while the boy's father has been away?

      a. It is shorter

      b. It has fallen down

      c. It is longer

29. How does the clothesline provide continuity (or a relationship) from chapter to chapter?

      a. Repetition

      b. It doesn't provide continuity; it's just a clothesline

      c. The clothesline is where they always hang their clothes to dry

30. What does the boy's mother mean by, "The Lord has come to you"?

      a. Listen

      b. it's the Lord's will that Sounder dies

c. It's the Lord's will that the boy go to school

Essay Directions: Write a paragraph to answer the following questions.

31. Is this a sad book? Hopeful book? A dog story? Explain your answer in a paragraph.

32. Reread the quotation from page 90:

> *I have often heard it said that cowardice*
> *Is the mother of cruelty, and I have found*
> *by experience that malicious and inhuman*
> *animosity and fierceness are usually*
> *accompanied by weakness. Wolves and*
> *filthy bears, and all the baser beasts, fall*
> *upon the dying.*

What does this passage mean? Why did the author choose this particular quotation? How does this quotation relate to the novel, *Sounder*?

General Questions (just for my interest):

1. Of all of the reading you do, how well did you like this novel? (Circle 1 for lowest, and circle 10 for highest)

    1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10

1. Why did you give your book the rating above? Share a few comments with me about why you gave the rating you did.

2. Would you recommend reading this book?

Appendix H

Background: Pilot Study

The proposed study was partially informed by a pilot study that investigated several aspects of the literacy meaning making process while sixth-grade students read from Nooks and books during the 2011-2012 school year. The major focus of the pilot study was motivation. Motivation was studied by providing students access to a variety of choices using modern texts and allowing them a choice in their mode of reading. Students were allowed to choose a Nook or a traditional book and then entered into reading groups, while capturing those affordances by online discussion groups. Participants included 11 Nook readers and 11 traditional book readers.

This mixed methods pilot study involved engaging students from lower-income homes and lower-income schools, by using Nook ereader technology and was informed by the following research questions:

1. Is motivation affected when adolescents are provided opportunities to read self-selected current young adult novels in traditional and Nook formats?

2. Do adolescents prefer traditional or Nook books?

3. What are the reasons for adolescents' preferences?

4. How do Nooks and traditional texts contribute to or constrain adolescents' reading experiences?

Data were collected and analyzed using the Pitcher et al. (2007) Adolescent to Read Profile (AMRP) and post-test interviews.

Further, paired sample t-tests, using the AMRP revealed no significant differences between the two sixth-grade groups, Nooks and traditional text readers. However, in analyzing the qualitative data, using the qualitative content analysis method (Lincoln & Guba, 1985), codes were developed that showed boys enjoyed reading from the Nooks more than girls. Girls preferred reading from traditional books mainly because they could see their progress by turning pages, while boys enjoyed the many technological features offered by reading from a Nook. Although the quantitative findings were inconclusive, procedures from this pilot study informed my research.

Appendix I

Rules and Qualitative Worksheet for Respondent Interviews

1. Rules Used for Analyzing Data using Qualitative Content Analysis (Zhang & Wildemuth, 2009):

Step 1: Prepare the Data

Transcribe all interview data. Data were organized according to Nook or book group identification according to interview question number. Respondent numbers were given and then answers followed, all verbalizations were transcribed literally, sounds and pauses were included. See example below:

Nook Group Compilation

QUESTION 1

How did reading the Nook compare to reading a book for you? What do you think are the advantages or disadvantages of reading on a Nook as compared to a book?

RESPONDENT 1

I think it's pretty much the same as reading a Nook or reading a book. But I like reading a book a little bit better because you actually can hold the book and can actually study the words more. And if the Nook dies, then you have to charge it and wait. And if you've got a book, you can just sit there and read it all day. That's what I think.

RESPONDENT 2

The Nook you could flip it just by the screen instead of book, flipping all the pages and you might accidently skip one page.

Step 2: Interaction with the Data

I read all responses, without coding, two times. Beginning with the Nook group responses, then I read the book group responses.

Step 3: Define the Unit of Analysis/Codes

Expressions of an idea or a theme (Minichiello et al., 1990; Weber, 1990) revealed through chunks of text, were used to define a unit of text. These units of text were identified as codes and they were usually the size of individual words or phrases.

For example, from Respondent 1 above, the text chunk of: "it's pretty much the same," was defined as the code, *same as book* for Nook group respondents (Question 1).

Some definitions were simple, like the example provided, they answered the question. While others, were more involved, as seen in the second sentence for Respondent 1: "like reading a book better," was defined as the code, *liked book better* as additional information was given for Nook group respondents (Question 1). Units of analysis for the respondent interviews consisted of expressions of an idea or answer to the question.

Step 4: Tested Coding Scheme on a Sample of Text

Before beginning the overall coding procedure, I tested my codes on a sample of text. For this process, I used the Nook group respondent answers to Question 1. Consistency was achieved on a base level because respondents basically answered the questions. However, variation in answers became evident and further codes were added based on individual answers (see example in Step 3).

Step 5: Code All Text

Coding all the text consisted of identifying the meaning units/codes and highlighting those units. Yellow was used for answers to the questions, which were simple and somewhat predicted codes. However, purple highlighting was used for any additional information given and coded into meaning units. Respondents' own words were used when feasible. These codes were then refined into five basic categories.

Step 6: Assess Coding Consistency

After coding all data one time, I went back through and rechecked codes to make sure all meaning units were coded. Also, an additional literacy specialist, with a finding of 90% accuracy, checked coding.

Step 7: Draw Conclusions from the Coded Data

Patterns began to develop from the data and I grouped codes to initial categories. These five categories were: Context, Beliefs about Experience (Positive), Beliefs about Experience (Negative), Beliefs about the Novel and Journaling, and Beliefs about Authenticity. These categories are presented in more depth following this rules list within Appendix I. From these five categories and purposeful analysis of these categories, five properties were identified. The five properties were emotions, experiences, opinions, actions, and beliefs. Within these properties, dimensional ranges emerged. For example, for the property of emotions, respondents identified whether they valued the modal reading experience. Through an overall analysis of the data, it became evident that the main category of *comfort*. The concept of *comfort* epitomized respondents' experiences.

2. Definitions of Categories of Participants' Knowledge of Book and Nook Reading

Definitions of Categories of Participants' Knowledge of Book Reading Experience with Examples of Codes were given for Context sections of Book and Nook Groups. Categories indicate findings from Book and Nook group experiences and are reported in *italics*.

A. **Context:** Statements that indicated an understanding of the experience of mode. In this case, the mode of reading is with a Book. Examples of codes *italicized* below:

1. Participants identified cultural aspects of reading with the Book contributing to positive nature of reading with technology: "You're like an old-fashioned person reading a book" and "I mean I do like to see the pages on the book, but I think I just go faster on a Nook—It's just weird"—both coded as *efficiency of digital reading*.

2. Participants identified their personal experience with reading from a book-- comment may be positive, negative, or indifferent.: "Well like with technology being so up now-a-days, it kinda feels just like you're all alone, almost"—coded as *feels alone with technology*.

3. Participants identified educational settings/activities contributing to understanding and/or use of book: "I liked reading from a book b/c I could go back easier" –coded *refer back easier* and "it was probably better reading from the book b/c I could write a little more on the sticky notes..." –coded as *liked using features* and "It just works more, better for me"—coded as

comfort…several quotes about feeling more comfortable educationally reading from a book.

B. **Beliefs about Experience:** Statements that indicate a positive experience with reading on the Book.

1. Participants indicated ideas regarding the convenience of reading from a book.

2. Participants identified specific aspects of reading from a book that they appreciated, liked, or that helped them read more efficiently (similar to "settings" on a Nook).

3. Participants identified specific highlighting, notes, dictionary that they used, liked, or that helped them read and/or comprehend (understand) the text more efficiently.

4. Participants expressed thoughts about how the experience was beneficial to them (reading from a book).

5. Participants considered their positive experience with the book (general interpretations).

C. **Beliefs about Experience:** Statements that indicated a negative experience with reading on the Book.

1. Participants indicated ideas regarding the negative aspects of reading a book.

2. Participants identified specific settings/features and aspects of the Book that they disliked and that did not help them. "It takes more time to look up words in the dictionary than on a Nook"—didn't want to look up words b/c it took too long—didn't use notes and highlighting either—took too much time and

he wanted to focus on reading the book—sees the supportive features of book as distracting rather than helpful..

3. Participants considered their negative experience with the Book (general interpretations). "I could read on a Nook faster"--coded as *efficiency*.

D. Beliefs about the Novel and Journaling:

1. Participants identified and/or explained the theme, plot, or other aspects about the novel by reading a book and using the facilitative features (rather than reading from a Nook).

2. Participants expressed ideas about their experience journaling: "I liked writing in my journal because I, because it helps you like, if you have these questions, it helps me go back in my book and see if I forgot something. And I can write about it and I can go back to it see what it, like what it was."

E. Beliefs about Authenticity:

1. Participants discussed opinions/beliefs regarding the authenticity of books. Especially in regards to authorial intent: "It just gives you the feel of everything.[reading a book]" and "On a Kindle there are distractions like author, description, and other things…"

2. Participants' perceptions of why it was better to read from a book. Many participants expresses that they should like digital reading because of the popularity of online/digital reading. However, when interviewed, participants discussed their comfort level with the book and often made borderline defensive statements in support of regular book reading as a viable mode.

Definitions of Categories of Participants' Knowledge of Nook Overall Reading

Experience:

A. **Context:** Statements that indicate an understanding of the experience of mode. In this case the mode of reading is on the Nook.

1. Participants identify cultural aspects of reading with the Nook contributing to positive nature of reading with technology: "It's good to be using technology"—coded as *positive experience*.

2. Participants identify their personal experience with reading from a Nook—it may be positive, negative, or indifferent: "The Nook you could flip it just by the screen instead of book flipping all the pages and you might accidentally skip one page" and "you could highlight and take notes without messing up the book"—coded as *positive aspects of technology*.

3. Participants identify individuals (usually people in their families) that would enjoy or not enjoy reading from a Nook. "It's more interesting to play with it a little—you get to see, like how easier it is than a regular book and having to look up stuff"—coded as *high interest*.

4. Participants identify individuals who already read using technology. That relationship is described in terms of positive and/or negative experiences with ereaders. "I prefer typing better than writing"—coded as *positive aspects of technology*.

5. Participants identify educational settings/activities contributing to understanding and/or use of ereaders. "It seemed like I got into it more than I

did a book…when I read in a book, I get distracted a lot"—coded as *felt more focused*.

B. **Beliefs about Experience:** Statements that indicate a positive experience with reading on the Nook.

  1. Participants indicate ideas regarding the Convenience of Technology.

  2. Participants identify specific settings that they changed, liked, or that helped them read more efficiently.

  3. Participants identify specific facilitative features (highlighting, notes, dictionary) that they used, liked, or that helped them read and/or comprehend (understand) the text more efficiently.

  4. Participants expressed thoughts about how the experience could change in the future.

  5. Participants considered their positive experience with the Nook (general interpretations).

C. **Beliefs about Experience:** Statements that indicate a negative experience with reading on the Nook.

  1. Participants indicate ideas regarding the Inconvenience of Technology.

  2. Participants identify specific settings and aspects of the Nook that they disliked and that did not help them.

  3. Participant's negative aspects of the Nook.

  4. Participants considered their negative experience with the Nook (general interpretations).

D. Beliefs about the Novel and Journaling:

1. Participants identify and/or explain the theme, plot, or other aspects about the novel.

2. Participants express ideas about their experience journaling.

3. OVERARCHING PROPERTIES: Melding Book and Nook Modal Reading Experiences: How participants view whether reading mode matters is presented below. Participant behaviors and reported responses are blended below to note overall experience: collective/shared, emotive, and educational needs/issues in regard to modal reading.

1. Participants identify positive and/or negative *emotions* toward book and Nook reading

2. Participants identify positive and/or negative *experiences* with book and Nook reading

3. Participants identify positive and/or negative *opinions* with book and Nook reading

4. Participants identify positive and/or negative *actions* with using the facilitative features

5. Participants identify positive and/or negative *beliefs* regarding their experiences with book and Nook reading and/or modal reading

Appendix J

Matched Pairs Score Summary

Matched Pairs Participants	Nook Group			Book Group		
	MAP Score	Final Comprehension	Post MMRS	MAP Score	Final Comprehension	Post MMRS
1	228	24	66	230	24	57
2	226	28	83	226	16	56
3	224	17	50	225	24	70
4	223	23	67	223	26	66
5	221	21	69	221	21	71
6	221	24	60	221	26	81
7	218	21	73	218	23	41
8	217	21	59	217	26	61
9	213	25	76	215	15	65
10	213	27	82	213	17	47
11	212	17	65	212	22	48
12	211	25	68	211	14	53
13	211	23	63	210	28	47
14	210	20	60	210	26	70
15	209*	26	70	209*	21	47
16	207*	23	58	207*	18	50
17	206*	29	51	205*	18	60
18	192*	24	79	185*	17	56

Note. MAP refers to Measures of Academic Progress. MMRS refers to Modality and Motivation to Read Survey. *-indicates below-grade reading level for spring MAP score.

Appendix K

Student Assent Form

Student Assent Form
Clemson University

Dear Student,

I am a teacher at Clemson University and I teach people who want to be teachers one day. I would like you to help me with a project called ***A Comparison of Adolescents' Digital and Print Reading Experiences: Does Mode Matter?*** The project will tell me about how students your age feel about reading, what they talk about when they read the same book, and that makes them want to read using Nooks. By helping me with this project, you will also be helping other teachers learn more about what kids your age like to read, what motivates them to read, and what teachers should do to get their students to understand the books they read. This project will give you a chance to improve your reading comprehension and motivation to read. And, you will have a chance to use technology and practice your comprehension skills.

I am asking you to help me learn more about how kids like you feel about reading. You don't have to help me if you don't want to, and if you decide to help but later on, decide you don't want to be in the project any more, that's okay. You can stop any time you want and you don't have to tell me why. You will not get in trouble or get a bad grade if you stop. Any time you have questions about the project, you can ask your teacher, Heather, my graduate assistant, or me. You can call me to ask a question if you want. My telephone number is 864-656-2259. Heather's phone number is (864) 723-4744.

I will do everything possible to protect your privacy. I will not discuss you or other students with others and we will not use your name in any publication or professional presentation that may result from this study. If consent is given, recordings of participants will be used for presentation and publication materials. Materials will be stored in offices 400-B or G06-D in Tillman Hall, Clemson University. Members of the research team will do transcription and access by others is denied. If the need arises, pseudonyms for responses or images will be used. Recordings will be erased or destroyed according to Clemson University's Research Data Retention Policy.

I am asking you to help me because many kids your age do not like to read independently in school. In this project, I will ask you to complete a short survey

about how your feel about reading, take a reading test, and fill out another short survey about how you see yourself as a reader and writer. Then, I will give you a book that will be assigned in your English/Language Arts class. I will put you in a group and you will read from a Nook or a traditional book. After each book read, you will take a short comprehension test. After all the books are read, about 40% of the students who participated in the study will get together with us at the end of the study to tell us what you thought about reading the book and how you read it. At the end of the project, your teacher will keep the book so other kids in your class can read it. This project will not put you or your grade in English Language Arts at risk or make you uncomfortable. Your parent has signed a letter saying you can help me.

Sincerely,

Dr. Linda Gambrell
Clemson University

By signing below, I am saying that I have read this form and have asked any questions that I may have. All of my questions have been answered and I understand what I am being asked to do. I am willing and would like to be in this study.

_____   _____
Signature of Student   Date

A copy of this form will be given to you.

Appendix L

Parental Consent Form

Parent Permission Form
Clemson University

Dear Parent,
My name is Linda Gambrell and I am a faculty member in the Teacher Education program at Clemson University. My graduate student, Heather McCrea-Andrews, and I are inviting your child to take part in a research study at Judson Middle School. Your child's teachers, Mrs. Thomas and Mrs. Smith, are working with Heather and me to learn more about middle school students' reading and writing. We are trying to understand why some kids are motivated by reading on Nooks and others are not. Also, we are trying to find out if reading digitally (on a Nook) is better for comprehension or if traditional books are more conducive to reading comprehension. In order to understand students' current comprehension levels, we will review their fall Measures of Academic Progress (MAP) scores. Students will be given an number and will be identified with that number instead of using their name. To understand how kids feel about reading, we are asking you to allow your child to read, write about, and talk about a chapter book in class.
Your child will be asked to:
1. complete a short survey about your child's feelings about reading;
2. read at least two chapter books;
3. write in their journals about what they read (your child will write about characters and events in the book, and predict upcoming events) ;
4. talk with Heather and me about the book they are reading and if they like the mode of reading, Nook or book;
5. and 40% of students will be randomly selected to participate in respondent interviews. These interviews will be recorded to ensure correct response recordings. Attached is an Authorization for Voice Recording permission form.

Your child will spend about 20 minutes a day reading about the book over a 4 to 5-week time period. Students will also write in a paper journal twice-weekly. There are no known risks or discomforts associated with this research. Your child will benefit from participation in the study by having the opportunity to read and talk about books, improving his/her comprehension, spelling, vocabulary, writing ability, and technology usage. This research may help us understand what motivates students to read.

Heather and I will monitor students and answer their questions throughout the process. I will do everything possible to protect your child's privacy. Recordings from this project will be destroyed by June 30, 2013. We will not discuss your child with others and we will not use your child's name in any publication or professional presentation that may result from this study.

You do not have to let your child be in the study. You may tell us at any time that you do not want your child to be in the study anymore. Your child will not be punished in any way if you decide not to let him/her be in the study or if you stop your child from continuing in the study. Your child's grades will not be affected by any decision you make about this study.

We will also ask your child if he/she wants to take part in this study. Your child will be able to refuse to take part or to quit being in the study at any time.

Contact Information

If you have any questions or concerns about this study or if any problems arise, please contact Linda Gambrell at Clemson University at 864-656-2259 or Heather McCrea-Andrews at (864) 723-4744.If you have any questions or concerns about your child's rights in this research study, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or irb@clemson.edu. If you are outside of the Upstate South Carolina area, please use the ORC's toll-free number, 866-297-3071.

Consent

I have read this form and have been allowed to ask any questions I might have. I give my permission for my child to be in this study.

Parent's signature: _____ Date: _____

Child's Name: _____

A copy of this form will be given to you.

Teacher Information Letter

Teacher Permission Form
Clemson University

A Comparison of Adolescents' Digital and Print Reading Experiences: Does Mode Matter?

Dear Teacher,

My name is Linda Gambrell and I am a faculty member in the Teacher Education program at Clemson University. My graduate student, Heather, and I are inviting you to take part in a research study at Judson Middle School. We are interested in learning more about middle school students' reading comprehension and motivation to read. We want to investigate differences in adolescents' reading comprehension when reading complex texts on ereaders as compared to reading traditional books. We are also interested in determining why some students are motivated to read, while others are not.

You will be asked to hand out and collect student permission forms. Also, we request the use of students prior standardized test scores for research purposes only. The scores will be used to match ability levels within groups. These groupings will remain private and a function of the research design only.

There are no known risks or discomforts associated with this research. You will benefit from participation in the study by having my graduate student and me engage your students in reading while you attend to other classroom matters. Your students will benefit from the research by having the opportunity to read more complex texts in a structured fashion and understand this process as it relates to motivation and perceptions. This research may help us understand what motivates students to read as well.

I will do everything possible to protect your privacy. I will not discuss you or your students with others and we will not use your name in any publication or professional presentation that may result from this study. If consent is given, transcribed recordings of participants will be used for presentation and publication materials. Materials will be stored in offices 400-B or G06-D in Tillman Hall, Clemson University. Transcription will be done by members of the research team only and access by others is denied. If the need arises, pseudonyms for responses will be used. Recordings will be erased or destroyed according to Clemson University's Research Data Retention Policy.

You do not have to be in the study. You may tell us at any time that you do not want to continue with the study. You will not experience any repercussions if you decide not to be in the study or if you discontinue your participation in the study.

Contact Information

If you have any questions or concerns about this study or if any problems arise, please contact the Principle Investigator: Linda Gambrell at Clemson University at 864-656-2259, or Doctoral Candidate: Heather McCrea-Andrews at Clemson University at 864-723-4744.

If you have any questions or concerns about your child's rights in this research study, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or irb@clemson.edu. If you are outside of the Upstate South Carolina area, please use the ORC's toll-free number, 866-297-3071.

Consent

I have read this form and have been allowed to ask any questions I might have. I give my permission for participation in this study.

Teacher's signature: _____ Date: _____

A copy of this form will be given to you.

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