WHAT ARE THE EFFECTS OF eREADERS VS. PRINT TEXT ON STRUGGLING EIGHTH GRADE READERS IN THE LANGUAGE ARTS CLASSROOM?

A Thesis by

Cheryl Lynn Poage

B. S., University of South Florida 2002

Submitted to the Department of Curriculum and Instruction
and the faculty of the Graduate School of
Wichita State University
in partial fulfillment of
the requirements for the degree of
Master of Education

May 2011
WHAT ARE THE EFFECTS OF eREADERS VS. PRINT TEXT ON STRUGGLING EIGHTH GRADE READERS IN THE LANGUAGE ARTS CLASSROOM?

The following faculty members have examined the final copy of this thesis for form and content and recommend that it be accepted for partial fulfillment of the requirements for the degree of Master of Education in Curriculum & Instruction.

____________________________________
Jeri Carroll, Committee Chair

____________________________________
Kimberly McDowell, Committee Member

____________________________________
Catherine Bohn-Gettler, Committee Member
DEDICATION

To my amazing family--you have supported me, encouraged me, and inspired me to live my dream--thank you for your patience. To my principal—without your support, this research would not have been possible. To my colleagues—thank you for being a sounding board and for your valuable input. To my students, past and present, who have taught me that with determination and perseverance anything is possible. You are what teaching is all about.
Any book that helps a child to form a habit of reading, to make reading one of his deep and continuing needs, is good for him.

~Dr. Maya Angelou
ACKNOWLEDGEMENTS

I would like to thank Dr. Jeri Carroll, my advisor, for her support throughout the past two years. Without her encouragement and guidance, this thesis would not have been possible. I would also like to thank Dr. Kim McDowell, for her advice and assistance while serving on the thesis committee, and Dr. Catherine Bohn-Gettler for her words of wisdom and agreeing to take part in this project.
ABSTRACT

The purpose of this four-week study was to determine if the use of eReaders vs. traditional print novels in the eighth grade classroom would increase the comprehension scores, engagement, and comprehension strategy usage of struggling readers in the language arts classroom. The participants in this study consisted of twelve eighth grade students who performed at least two grade levels below on the STAR Comprehension Test. In addition to performing poorly, these students were also reluctant readers. Based on the assessments and classroom observations, the researcher attempted using eReaders to increase engagement, comprehension, and strategy usage. The researcher collected data on engagement before and during the study and had the students in the control and experimental groups work on comprehension strategies during the four-week period. Students took a STAR test at the end of the four weeks to measure comprehension gains. The results indicated significant gains in positive engagement and in comprehension strategies (words looked up and connections made) for the eReader group, while students in the print group were approaching significance in comprehension. In conclusion, the research showed that both conditions boasted positive results in various aspects of the study. While eReaders served as a tool to engage students positively during reading and to assist in the task of note taking, it did not necessarily contribute to the increase in comprehension gains.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>6</td>
</tr>
<tr>
<td>2.1 Electronic Books in the Classroom</td>
<td>8</td>
</tr>
<tr>
<td>2.2 21st Century Technology and eReaders</td>
<td>12</td>
</tr>
<tr>
<td>2.3 Handheld eReaders of the 21st Century</td>
<td>15</td>
</tr>
<tr>
<td>2.4 Struggling Readers, Reluctant Readers, and Special Education</td>
<td>16</td>
</tr>
<tr>
<td>2.5 Importance of Increasing Comprehension</td>
<td>19</td>
</tr>
<tr>
<td>2.6 Summary</td>
<td>21</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>23</td>
</tr>
<tr>
<td>3.1 Participants</td>
<td>23</td>
</tr>
<tr>
<td>3.2 Instruments</td>
<td>25</td>
</tr>
<tr>
<td>3.2.1 Formal</td>
<td>25</td>
</tr>
<tr>
<td>3.2.2 Informal</td>
<td>26</td>
</tr>
<tr>
<td>3.3 Procedures</td>
<td>26</td>
</tr>
<tr>
<td>3.2.1 Teacher-based Strategy</td>
<td>26</td>
</tr>
<tr>
<td>3.3.2 Use of eReaders</td>
<td>27</td>
</tr>
<tr>
<td>RESULTS</td>
<td>30</td>
</tr>
<tr>
<td>4.1 Statistical Analysis Pre-vs. Post-test</td>
<td>31</td>
</tr>
<tr>
<td>4.2 Field Notes</td>
<td>38</td>
</tr>
<tr>
<td>DISCUSSIONS</td>
<td>43</td>
</tr>
<tr>
<td>5.1 Hypotheses</td>
<td>43</td>
</tr>
<tr>
<td>5.2 Conclusions</td>
<td>45</td>
</tr>
<tr>
<td>5.3 Limitations of Study</td>
<td>48</td>
</tr>
<tr>
<td>5.4 Efficacy of eReaders</td>
<td>49</td>
</tr>
<tr>
<td>5.5 Future Studies</td>
<td>54</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>56</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS (continued)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPENDIXES</td>
<td>60</td>
</tr>
<tr>
<td>A. eReader Step by Step</td>
<td>61</td>
</tr>
<tr>
<td>B. Print Book Questioning Handout</td>
<td>62</td>
</tr>
<tr>
<td>C. Engagement Sampling</td>
<td>63</td>
</tr>
<tr>
<td>D. Print Book Step by Step</td>
<td>64</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 3.1  Descriptive Chart of Participants</td>
<td>24</td>
</tr>
<tr>
<td>Table 4.1  Descriptive Statistics for eReaders</td>
<td>30</td>
</tr>
<tr>
<td>Table 4.2  Descriptive Statistics for Print</td>
<td>31</td>
</tr>
<tr>
<td>Table 4.3  Group Differences in Reading Comprehension</td>
<td>32</td>
</tr>
<tr>
<td>Table 4.4  Differences in Levels of Engagement</td>
<td>33</td>
</tr>
<tr>
<td>TABLE 4.5 Differences in Strategy Use and Quantity of Reading</td>
<td>35</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 4.1</td>
<td>STAR Scaled Score gains for each student.</td>
<td>32</td>
</tr>
<tr>
<td>Figure 4.2</td>
<td>Positive and negative engagement before and during study for both conditions.</td>
<td>34</td>
</tr>
<tr>
<td>Figure 4.3</td>
<td>Words looked up per student during study.</td>
<td>36</td>
</tr>
<tr>
<td>Figure 4.4</td>
<td>Comparison of amount of notes taken between eReader and print groups.</td>
<td>37</td>
</tr>
<tr>
<td>Figure 4.5</td>
<td>Gain scores per student in the eReader and print groups.</td>
<td>37</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

It’s 6:00 am and the alarm is blaring to the tune of Sugarland’s snappy beat. Sara swings her feet over the edge of the bed and reaches for her cell phone. She immediately texts her friend Lexy to see if she is riding the bus into school, and questions her about the choice of dress for the day. As she awaits her response, she checks her weather app on her iPhone and decides warmth is a priority.

She runs downstairs, jumps on her Wii Fit for a quick workout, and then runs back upstairs to pop her pancakes into the microwave. As she forks the food into her mouth, she flips open her Kindle and reads a few pages of *Hunger Games*. As she is highlighting a passage in her eReader, she hears her cell phone playing a familiar tune. When Sara answers, she hears her mom on the other end reminding her to bring the report she worked on last night to school—as Sara hangs up the phone with her mom, she hears the ding of her phone reminding her of the same information—thank goodness for moms and calendar alerts!

Sara races to the computer and quickly prints the paper out while she rapidly sorts through her emails. Paper in hand, Sara sprints up the stairs, places her iPod into its dock and turns up the volume, so she can listen to her favorite group as she quickly showers. As she dresses, she shoots a quick text to her friend Lexy, who lets her know the bus just arrived at her house. Sara flies down the stairs, just in time to hear the familiar groan of the bus as it crawls around the corner.

It’s 7:15 when she hears the wheels of the bus come to a grinding halt. Sara leaves her eReader on the counter for safekeeping, grabs her cell phone and throws it
into her overstuffed backpack. She secures her earphones, clips on her iPod, and lifts her twenty-pound backpack over her shoulder as she trudges to the steps of the bus.

Sara’s eyes quickly dart around the bus, looking for Lexy. Perfect—Lexy had saved her a seat. Sara staggers to her seat, trying to balance herself as the motion of the bus and the weight of her backpack make this seem nearly impossible. Once to her seat, she settles in comfortably next to Lexy for their 25-minute ride.

Lexy instinctively pulls the ear bud out of Sara’s left ear and inserts it into her own. They both get pumped up and ready for the day as they listen to one of their favorite songs they had downloaded the day before. Sara pulls out her cell phone and flips to her eReader app. Reading will help pass the time during this long ride, besides she can’t wait to see what happens next to Katniss in the Hunger Games! She quickly settles in and takes notes on some of the confusing parts in the book. As she begins to highlight a key passage that she wants to discuss with one of her classmates, she feels her phone vibrate, and notices a text from Lexy. The cute new boy is seated two rows ahead. She smiles, shoots a response back to Lexy, and goes back to her spot in her “book.” She can’t put this down--Katniss, the protagonist, is just about to the cornucopia! The bus lazily squeals to a stop and she reluctantly shuts down her app. Sara hurriedly makes her way through the curtain of bodies walking towards the school, so she can finish the chapter before classes begin.

As Sara walks into school, she is immediately told to remove her earphones. So much for listening to music as she reads! Sara finds a seat in the commons and settles in to read the final pages of the chapter she started on the bus. While she is quietly reading, Mr. Smith taps her on the shoulder, holding out his hand. His eyes are set on
her phone. He reminds her sternly no cell phones are allowed out in school. Although Sara tries to explain she is reading on her phone, he states rules are rules, and takes her phone to the office. She will now need her mom to come to school to retrieve the phone. In an instant, Sara’s world as she knows it comes to an end—no communication, no music, no reading. Unplugged!

As she enters into her first hour language arts classroom, she listens to the familiar drone of her teacher lecturing. The students are told to read their novels. She finds the tattered copy of *Hunger Games* and opens the book to her spot. “*Great!*” she thinks. I can’t remember what I wanted to talk to Casey about—my notes are on my Kindle. She realizes, if she wants to make additional notes, she will need paper and pencil. Sarah opts out. When reading time is over, she listens as her teacher tells them to open their textbooks. Sara spends the next sixty-minutes writing notes, reading her textbook, and filling out her worksheets. As the class works individually, several students ask if they can listen to their iPods as they work. “*NO, you need to concentrate on the assignment and learn this information*” —the familiar answer, which is given by most of the teachers. Sara thought, “*When will teachers understand, that is how we learn.*”

Sara’s scenario is a familiar one, experienced by many students. Adolescents and teens spend the majority of their time outside of school being multimodal. They come from a generation of technology and multitasking. Students need to interact; not only with each other, but also with the assignments they are being given. When we ask a student to open a book, but don’t give them the opportunity to interact with the text, we are putting them at a disadvantage. Of course, we can hand them sticky notes or
paper to write notes on, but most students do not want to take the time to do this. If we give them the opportunity to read textbooks and novels electronically, the interaction would be at their fingertips.

Digital reading has evolved through the years, with the introduction of the Kindle, Nook, and iPad. Electronic reading has become a convenient way for students to not only to read novels, but also to read textbooks. The embedded tools, access to the internet, and size make eReaders appealing to most students and are suitable methods to allow students interact with text, while developing vocabulary and comprehension skills. eReaders give students the opportunity to listen to passages that may be confusing, highlight text, look up definitions to words and hear text being read to them. Students may access the internet to research information, or utilize preloaded handouts. In addition, many eReaders have an MP3 player built in which will allow students to listen to music while they work.

If we, as educators, expect our students to move into the 21st-Century, then we too need must move in that direction as well. Introducing eReaders into the classroom may be the first step to solving some of the problems that arise in today’s classroom and schools. Many students are struggling or reluctant readers; however, many of these students thrive on technology. If an eReader is placed in the hands of these students, it is possible that the integration of technology and reading, just might intrigue these students to not only engage in reading more often, but to use the tools available in order to develop better comprehension skills.

eReaders may not only be a helpful tool for on-level readers, but may prove to be vital for struggling readers and students with special needs. eReaders give students the
ability to change font size, listen to passages, look up definitions of words, highlight text and create annotations. Another positive aspect is that students will not be intimidated by a thick book or embarrassed about reading a low-level book. eReaders put all students on the same playing field. No one “looks” different. Differentiated instruction is also made easier using eReaders because personalized questions and assignments can be preloaded.

In a time where budget cuts are hitting our education system like rapid fire, the use of eReaders may be a way to dodge those bullets. eReaders are a cost effective way to archive novels and textbooks for student use; books cannot be lost or destroyed, and the cost for both novels and textbooks are minimal on eReaders in comparison to hard copies. The books are easily accessible and students can carry the whole load in a 10-0z package--no more twenty-pound backpacks stuffed with books!

As our nation struggles for answers to raise reading scores, reach diverse learners, and move students toward 21st-Century learning skills, all while cutting budgets, eReaders seem like a logical solution to the problem. In order for our students to reap the benefits of education, we need to change our style. It is time to move forward and be more open to the innovative methods technology offers us to reach our students. We cannot expect our students to grow, if we unplug them as they walk in our door.
CHAPTER 2
LITERATURE REVIEW

According to a 2007 study by the National Endowment for the Arts “less than one-third of 13-year-olds read daily, a 14% decline from 20 years ago (2007). In addition to a decline in reading, the ability to read well is also on the decline. According to NEA, reading scores for 12th grade readers decreased significantly from 1992-2005. The students showing the greatest decline were the lower-level students (National Endowment for the Arts, 2007). These statistics hold true in the school district mentioned in this study as well. In 2009, special education reading scores were at 91.4%; however, in 2010 the scores dropped to 88.4% (Kansas State Department of Education, n.d.). According to No Child Left Behind, it is the goal to have 100% of students reach proficient or above by the year 2014. In order to accomplish this task, educators must find measures that will not only entice students to read more often, but also give them innovative tools to enhance their comprehension skills.

In a recent article published in Science Daily, Lotta Larson, a K-State researcher, discusses a study in which students given eReaders have shown an improvement in their perception of their own reading, as well as their use of comprehension strategies. Preparation is undergoing to see the effect eReaders have on State Assessment scores also (Kindle EReader Motivates, 2010).

It has also been noted that struggling readers and students with special needs benefit from eReaders because of the ability to change text size, the availability of the electronic dictionary, and the capability to annotate. Teachers may preload individualized pre-reading questions to eReaders, allowing for differentiated instruction,
or students may choose to listen to the text being read, while continuing to highlight and annotate text. The most significant feature is that since all eReaders look the same; students with special needs will not feel they are “different” from their classmates when given the opportunity to read electronic books (Schrock, 2006).

In addition to helping both general education students and students with special needs, the last group of students that eReaders may have an impact on is boys. Studies show that that boys lag behind girls in reading at the elementary, middle and high school levels. The addition of eReaders may give boys more of an interest in reading due to the technological aspect. Boys are known to grasp onto video and tech gadgets, and the eReader may be just the thing to peak their interest (Osbourn, 2010).

The addition of eReaders in the classroom may be the piece of the puzzle that is missing to reach students at varying levels. The ease of use, the vast array of books that can be added and shared amongst students, and the various techniques that may be utilized to develop reading comprehension skills are all positive aspects of bringing this tool into our classroom to combine reading and 21st Century learning skills.

As students get older, they sometimes lose interest in reading, or feel it isn’t “cool” to be a reader. However, if we begin to look at reading in the 21st Century, we might look at ways that reading could appeal to a generation of tech-savvy adolescents. Integrating technology and reading may be the answer to enticing reluctant readers and giving struggling readers the differentiated instruction needed to help them achieve success.
2.1 **Electronic Books in the Classroom**

Electronic books have been an option in the classroom for many years. Through the years there have been opportunities for students of all age levels and learning levels to use versions of electronic books such as interactive CD-ROM books, computer programs that read books to students, or electronic books that may be downloaded and read on the computer. In addition to these devices, a new type of electronic book has been introduced recently--the eReader. These are portable electronic devices that are about the size of a regular book, but also allow students to interact with the text while reading. All of these versions of eBooks have contributed to the improvement of reading in various age groups and ability levels of students.

Nancie Atwell, a well-known author and researcher in reading, believes students should immerse themselves in reading. She discusses the importance of students noticing word choice, highlighting important sections, rereading, and looking up information that is unclear in order to grasp meaning (Atwell, 2007).

To corroborate this, in a study conducted with kindergarten and first grade readers in Israel, middle SES students were exposed to electronic books as a way to improve vocabulary, comprehension and fluency. The researchers used ninety children from five kindergarten classes and five first-grade classes. The students were introduced to an electronic book created by the researcher and colleagues. The book consisted of dictionary functions, had a read aloud feature and included hot spots, which gave additional information to more difficult parts of the story. After five readings, the students were tested on word knowledge, story comprehension, and words read. The results showed that both groups greatly benefited from the use of electronic books.
and students did not need much guidance when using the technology. In addition, kindergarten students showed a significant increase in word reading, compared to first grade students. However, when it came to reading the book back to the instructor, students in first grade were able to score higher in the rereading of the book. It is believed this may be because of the increased reading instruction a first-grade student has compared to a kindergarten student. All in all, the study did show that by allowing the students to use the electronic book and interact with the text, students seemed to have a better understanding of words and understood more difficult area of the text because of the “hot spots” or clarification animation embedded in the text (Korat, 2009).

As we delve deeper into the benefits of using electronic books with our students, we may want to think of how technology plays a huge part in our students’ lives. Technology is literally at their fingertips throughout the course of their day. Whether they are texting a friend, playing a video game, writing a paper, or downloading songs to their iPod—technology plays a huge role in the lives of today’s youth. Is it any wonder that holding a traditional book might seem mundane to our teens? As stated by Kathy Schrock, “Our students have grown up with technology all around them, are comfortable trying new things, and embrace new technologies” (Schrock, 2006).

In a recent study, a group of researchers looked at the effects of print vs. electronic text on the emergent reading of twenty-eight low SES kindergarten students. Because reading electronic books is becoming a more prominent way of reading between adult and child, the researcher wanted to see the effects of the study using adult supervision as well as independent usage. The students were split up into four groups two reading the eBook, with and without adult supervision, one group reading
print books with adult supervision, and a control group (Segal-Drori, Korat, Shamir & Klein, 2009). The three experimental groups worked for 15-20 minutes per session. The students working on eBooks were given the same introduction to the eBooks and were given support as needed. The students not working with adults did not receive any other support regarding reading strategies; however, those working with adults looked at focus words, and worked on repeated readings. The eBooks offered read alouds and highlighted text that went hand-in-hand with the narration. Students could also click on hot spots to give added meaning to the text (pp. 919-922). Pretests and posttests were given to the students in phonological awareness, word reading, and concept about print. The results showed great improvement in the students who had adult supervision using eBooks. It was believed that the eBook showed so much improvement because of the features it included compared to a regular print book. It was also taken into consideration that the improvement could be in conjunction with the repeated readings. Students who worked with the adults, read the book all the way through several times; whereas the students who worked independently may have only skimmed through a couple of times (pp. 922-924). The research being done is unique at this time, so there is not much to compare against. Future recommendations include expanding the grade levels being tested. The study concluded that it is important to integrate technology into reading, but it is also important to coordinate that with effective adult instruction (pp. 924-926).

Dr. Lotta Larson conducted an experiment using electronic book applications downloaded onto computers with a group of preservice teachers. These teachers read a designated book on their computer and responded to the book electronically through
asynchronous communication. Before embarking upon this experiment, the preservice teachers were skeptical. However, once they were able to see the features, ease of use, and low cost, the participants seemed to be more open to the idea. In addition to reading the text online, students also participated in an Electronic Reading Workshop (ERW). These students worked on responses through Blackboard in order to have ongoing conversations regarding the text that was being read, and they worked on the components of a reading workshop electronically. Because students were using eBooks, they were also able to access features such as animation, graphics, and sound. Editing tools are also a feature of eBooks, which allows the reader to highlight text, create sticky notes, and make annotations (Larson, 2008). These features proved helpful and allowed students to interact frequently with the text. In addition, preservice teachers were able to see the benefits electronic reading would give students in their classroom. The subjects of this study found that using eBooks could be beneficial to students and teachers alike. Electronic files that include prereading questions may be attached to the text in PDF format, vocabulary could be enhanced by highlighting key words, electronic literature circles could be utilized, and students could change font size, background color, or choose to listen to key passages (p. 123).

In addition to ERW, Larson had her students use electronic response journals and online literature conversations. By using electronic response journals, the researcher was able to comment electronically and offer feedback to students. The online literature conversations allowed students to respond to various prompts and feed off each other. Although the conversations were forced at first, the dialogue soon became more congenial and relaxed. It was noted that because students had time to
respond at his/her own leisure, the responses were more thought out and detailed. It was believed that having additional time to respond may have benefits to students in the language arts classroom as well (pp. 125-127).

The students in this research stated that although they felt there were many benefits from using electronic reader applications, the bulkiness of the computer seemed to be an issue. Students did not feel they could “curl up “and enjoy reading as they would with a print book (Larson, 2008, p. 123). In a recent interview with Dr. Larson, she explained that many of these students only had desktop computers; therefore making the experience rather rigid. She did feel that had these students had laptops or handheld devices, the experience might have been more enjoyable.

As we look at electronic books in the classroom, we must also look at how they have evolved over the past decade. What once started as a CD-Rom or a computer program with limited book access, has moved into an era of eBook applications to put on our computers, load on our phones, or hold in our hands. With nearly unlimited access to novels, textbooks, magazines, and newspapers--what will the future hold for the next generation of readers? Will this technology perhaps help our reluctant or struggling readers find a connection to the world in which they live--the 21st Century?

2.2 21st Century Technology and eReaders

As we look at the future of our students, incorporating 21st Century skills is synonymous with their success. In reviewing the 21st Century skills as defined by the Partnership for 21st Century Skills (2009), one would note that information, media, and technology skills, problem solving and critical thinking, as well as self-direction are some of the skills highlighted, amongst others, to ensure success.
As educators look at a way to improve reading instruction, we must also look at ways to entice students to read. If students are not interested in the idea of picking up a book for enjoyment, then he/she will be less than likely to read for knowledge. One of the single most important things we can do for our students is to get them to read for pleasure. Once we put books in their hands and allow them to see the joy in reading for pleasure, then we can incorporate the strategies needed to ensure comprehension strategies (Atwell, 2007).

In the quest to improve reading scores, we must not ignore the fact that integrating technology into the equation may be a key factor in increasing the interest and comprehension levels in our reluctant or struggling readers. By bringing eReaders into the classroom, this may be just the spark needed to ignite the fire, and create a reading explosion. It has been noted that with over eight million students in grades 4-12 struggling with reading, our nation is in serious need of improving reading instruction (Sternberg, Kaplan, & Borck, 2007). In addition, these alarming statistics have a high correlation with the success/failure rate of our young adults. In order to address this growing problem many professional organizations are putting in a call for the integration of technology in literacy programs. There is a hope that because students live their life with technology, if technology is incorporated with reading, this may generate a greater interest amongst students (p. 416).

Our students live in a world filled with technology--it is second nature to most of our students; therefore, it seems sensible to use technology to lure them into areas they may be reluctant to explore. Reading can be a problem for many of our students in the classroom--students with special needs, struggling readers, and reluctant readers.
However, if we incorporate the newest gadgets along with our expectations in the classroom, perhaps success is possible.

Larson discusses the possible disconnect between what students experience inside the classroom in comparison to what they experience outside the classroom. As educators, we have our students deal with print text on a daily basis when, in reality, their world is Web 2.0. If we expect students to buy into our lessons we must connect to what they are familiar with and implement lessons in which our students may relate (Larson, 2009).

In another study conducted by Larson, e-responding and e-reading was used with a group of fifth grade students to investigate how the use of technology might influence the reading habits and comprehension development of these students (Larson, 2009). In a presurvey most students were open to the idea of using an eBook; however there were some skeptics. After being trained on the various tools, the students began to highlight information and annotate. Larson notes that since the students were used to taking Accelerated Reading tests, the notes taken were at first relevant to what would be asked on an AR quiz; however, once students realized there was no assessment, the notes became more fluid and interactive (p. 256). Students in this study used the tools to interact with the text. They highlighted interesting phrases and words, used annotation for questioning and predictions, and wrote responses to what was happening in the in the piece throughout the entire novel. Students seemed to use the annotation feature much as they would text messaging--shortening words and using slang, but the content of the message was relevant. Larson noted in her article that the fifth grade students observed in this study enjoyed using the eBooks
more so than print books because of the features available (p. 256-257). This finding was a direct contrast to her study with preservice teachers who preferred the traditional book. Larson believes it was not the technology that played a part in the resistance, but the method of delivery (Larson, 2008).

As we look into the future of eReaders in the classroom, the technology intertwined with reading strategies seems to be favorable. Larson states, “The tools, in addition to being perceived as fun and motivating, encouraged readers to actively engage with the text” (Larson, 2009, p. 257). The only negative aspect of using eBooks is the delivery--the bulkiness of reading an eBook on a stationary computer screen. However, with the latest development to eBooks, eReaders such as Kindles, Nooks, and applications as such for iPods and cell phones may be the answer to this dilemma.

2.3 Handheld eReaders of the 21st Century

The use of portable eReaders such as Nooks, Kindles, and Sony Readers has begun to gain popularity recently. The readers prove not only to be cost effective and convenient, but they also seem to be motivational and less threatening to students who have struggled with reading in the past. Because of the interaction and individuality eReaders employ, these devices give teachers a glimpse into the thought process of readers as well.

Portability and cost have started a chain reaction across our country to bring eReaders into our schools. The cost of textbooks is on the rise and school budgets are on the decrease. This has led to schools across our nation finding creative ways to purchase the resources needed with the least amount of funds. Schools in California and Florida have bought eReaders for their students and loaded textbooks on them to
save money. Governor Arnold Schwarzenegger stated, “Basically, kids are feeling as comfortable with their electronic devices as I was with my pencils and crayons. Textbooks are outdated, in my opinion” (Tran, 2009, par. 7). Schwarzenegger planned to go digital across the state in August 2010 (par. 5). On a lower scale, Clearwater High School in Clearwater, Florida recently bought 2100 Kindles and loaded all their textbooks digitally for students. Clearwater is one of the first schools to do a school wide transformation from print to eReaders. Principal, Keith Mastorides, noted that since students live in a world of technology, they were “looking at textbooks a little differently.” Teachers think this may be a new way to reach students who might otherwise be reluctant, because technology is such a formative aspect of their everyday life (Catalenello, 2010).

2.4 Struggling Readers, Reluctant Readers, and Special Education

As stated previously, technology may be a great motivational tool for our students. Many students have difficulty with reading, but by adding the technological component, some of these difficulties could be minimized. Using electronic books could help with both struggling readers and readers with disabilities, as well as add an element of enchantment to entice the reluctant readers we encounter.

eReaders have features such as text to speech, interactive dictionaries, and the ability to enlarge text size and change fonts. eReaders can eliminate the stigma of others seeing the cover of the book being read, so no one knows how easy or difficult the book being read might be. With eReaders, no one is made to feel different. These devices give students with visual impairments the opportunity to enlarge text and read the same books others are reading in the classroom without the feeling of being
different than his/her classmates. In addition, eReaders can help with students who might have physical disabilities such as Muscular Dystrophy. Many of these students have difficulty using their hands, so page turning can be an issue--an eReader eliminates this problem with just the touch of a button. Text to speech is also an available feature which can be helpful for comprehension development. It has been noted that technology is an important component in teaching students with disabilities and should be utilized to enhance the reading experiences of these children (Milby & Rhodes, 2007).

eReaders are not only a beneficial tool to our students with learning disabilities, but can also be a huge asset to those who do not qualify for services as well. Assistive Technology (AT), or equipment that can be modified or customized to benefit the learning of an individual, can improve comprehension, motivation and attention (Reisberg, 2008). Unfortunately, AT is not commonly used or funded for students who do not qualify for special education. However, eReaders are a form of inexpensive AT that may be used to help all students achieve success and reach personal reading goals. The ability to interact with the text and convert text to speech may be valuable tools to help our struggling readers comprehend independently (para. 37).

In addition to helping students with disabilities, eReaders such as Nooks, Kindles, and Sony Readers could be a motivational tool to improve comprehension and engagement with reluctant and struggling readers. In a study published by Lotta Larson in September 2010, two second grade students were introduced to Kindles. The girls had very different reading abilities, as well as personalities. One student was an on-level reader, and rather outgoing; whereas, the second student was considered above-
level and rather quiet. The girls’ perception of themselves as readers followed suit (p. 17). The girls read the same books and were given the opportunity to highlight text and create annotations, which were copied each day by the observer. As with the fifth-graders in the previous study, during note taking, conventions were disregarded and the girls wrote what came to mind. The notes reflected each girl’s personality and the annotations displayed a progressive knowledge of the text as well as a need for clarification at times (p. 19). Larson categorized the second-graders responses into five distinct areas and recorded the percentages of notes taken in each area. Amy, the on-level reader took more notes and seemed to focus mainly on personal comments and questioning. On the other hand, Winnie, the higher-level reader took less notes, but focused mainly on personal connections and some commentary. Both girls interacted strongly with the text throughout the reading (pp. 17-19). Larson also observed that the girls utilized many of the features of the eReaders as well. They adjusted text size, used the online dictionary, and listened to some of the more difficult passages in the book by utilizing the text-to-speech feature (pp. 19-20).

The research seemed to implicate positive results for all involved--students as well as the classroom teacher. As a result of this study, Amy, the more reluctant reader, was noted as being “more excited about reading on the Kindle” (Larson, 2010, p. 20). Comparatively, Winnie, the higher-level reader, stated she enjoyed using the kindle because of the note taking capabilities. In addition, the classroom teacher, after reviewing the notes taken, was able to see a different side of her students. Whereas, “Winnie” was thought to be reserved and shy, her private notes revealed a more humorous side. The instructor was also able to guide instruction immediately after
reading the notes, in addition to clearing up any misinterpretations of the text. This proved to be valuable insight when focusing on comprehension strategies (pp. 20-21).

2.5 Importance of Comprehension

As educators continue to ensure all students experience success in the classroom, one of the biggest tasks teachers have to face is to be sure students have the skills needed to succeed in lifelong learning. In order to do so, the first step is to encourage students to develop a love of reading. As students read more often, they will begin to engage in thinking about what is being read—the use of particular word choice, the meaning of a specific word, questions regarding particular developments in the plot. This, in turn, may develop an internal sense of reading comprehension, which is imperative to long term success both in and out of the classroom. Therefore, it is the job of educators to guarantee students are given what is needed in the classroom to assure that reading becomes a priority in their lives.

There are sometimes conflicting thoughts on what defines comprehension. Noted author Nancie Atwell, author of *The Reading Zone*, discusses the need to allow students the time to read what they love and develop a passion for reading without assigning tasks during the reading. She encourages her students to highlight text, take notes, discover new words, and find how language plays a part in the text (Atwell, 2007). Atwell feels that by asking students to use specific comprehension strategies while reading, it may, in fact, hinder their understanding of the novel (Atwell p. 51).

However, other experts, although agreeing with some of Atwell’s thoughts on reading, also believe in the importance of using comprehension strategies in order to improve reading amongst students. *Reading Next: A Vision for Action and Research in
Middle and High School Literacy, written by Gina Biancarosa and Catherine Snow, recently published a study stating that approximately eight million students between fourth and twelfth grade are classified as struggling readers. Although many of these students do have the ability to read, the common denominator in their struggle is comprehension (p. 3). This is only magnified when English Language Learners and students with disabilities are put into the mix (pp. 8-9). In order to address the issue of comprehension, the panel suggested implementing fifteen strategies into instruction in order to foster better comprehension skills. Several of the strategies highlighted were explicit comprehension instruction, motivation to read, implementing technology, and providing time for reading (pp. 3-4).

The study suggests using direct comprehension strategies such as summarizing, prediction, questioning, and clarifying in order to encourage students to think about their reading (Biancarosa & Snow, p. 14). Another suggestion of the panel was to motivate students in order to keep them engaged. One thought on how to keep students engaged is to allow them to choose what they read, rather than assigning books (p. 16). The perfect opportunity to allow self-choice is during independent reading time. If students are reading what they enjoy—they are more likely to “buy into” the idea of reading for pleasure. The third idea for increasing reading comprehension in students is to add a technology component. The study states, “…technology plays an increasingly central role in our society. Technology is both a facilitator of literacy and a medium of literacy. Effective adolescent literacy programs therefore should use technology as both an instructional tool and an instructional topic” (Biancarosa & Snow, p. 19). Another technique, featured in the fifteen strategies, suggested embedding time to read into the
classroom schedule. It is believed that without sufficient time to read, none of the aforementioned strategies will reach the full efficacy needed to improve the reading of adolescents (p. 20).

2.6 Summary

In summary, one might conclude that the use of eReaders is the new wave of the future. Integrating technology with reading may be just what is needed to hook reluctant readers, give confidence to struggling readers, and keep avid readers intrigued. In the past decade, eReaders have taken great strides. We have gone from CD-ROM books, to electronic book applications that can be downloaded in an instant--from reading on a desktop computer to reading on handheld eReaders. One can only imagine what the next decade may hold for reading and technology.

Although published research on the benefits of eReaders is in its early stages, Larson, one of the pioneers in this research, stated that there are numerous studies being conducted at the present time to examine the effects eReaders have on engagement, comprehension, and fluency (2010). In addition, schools and colleges are now looking to eReaders as a cost-effective way to give students access to textbook and novels.

A 2010 study by Scholastic on reading in the digital age showed a decline in the amount of time kids read for fun; however, there is an increase in the amount of time students spend using technology. The study, which surveyed 1045 young people, ages 6-17, stated that kids would be more interested in reading if it was offered electronically. This response came from not only avid readers, but from reluctant/non-readers as well. Although only 6% of parents currently own an eReader, they are open to the idea of
purchase, and sharing these devices with their children. The Chief Academic Officer for Scholastic believes eReaders may be the way to capture young readers’ attention and develop more proficient readers in the future.

As we search for the answers to raise reading scores and ignite an interest in reading amongst all students, the answer may be right in the palm of our hands.

In preparing to conduct this study, the researcher looked for answers to the following question: What are the effects of eReaders on comprehension scores, engagement, and usage of comprehension strategies in struggling students in comparison to print novels?
CHAPTER 3
METHODOLOGY

3.1 Participants

In the beginning of the 2010-2011 school year, the researcher surveyed eighty eighth grade language arts students on their thoughts about reading. The students ranged from thirteen to fourteen years of age. After evaluating the survey, the researcher found the results to indicate students did not enjoy reading, and more so had difficulty comprehending what they read. Many of the students were inclusion students, or students who had below grade-level reading abilities. Throughout the months that followed, the researcher also observed students had a love of technology. Therefore, putting the two together, the researcher implemented a program in which technology and reading were combined.

After evaluating the instructional reading level as diagnosed by the STAR Reading Test, the researcher chose twelve students (4 boys and 8 girls) to participate in a program in which six students read books on eReaders (Nooks and Kindles), and six students read print books. The students chosen for the study were at least two grade levels below the eighth grade reading level. Many of these students qualified for special education services, were English Language Learners, or had 504 plans; three of the students were regular education students with no accommodations (see Table 3.1).

The instructional reading level of the students in this study ranged from 1.5 to 6.0 (see Table 3.1). There were 33% of the students who qualified for special education services, 8% ELL only, 16% who were on a 504 plan only, 25% regular education, 8% ELL and SE, and 8% ELL and 504. All students spent ninety-minutes in the language
arts classroom. The student with special needs had para-professional support throughout the language arts block, but spent their time in the classroom for the full ninety minutes. For one student, this was the first time ever attending class in a regular language arts classroom. Three of the five students with special needs spent an additional forty-five minutes per day in the resource room, and one of the ELL students received additional services on a daily basis; however, two of the ELL students were on consult only.

**TABLE 3.1**

**DESCRIPTIVE CHART OF PARTICIPANTS**

<table>
<thead>
<tr>
<th>Student</th>
<th>SS (STAR)</th>
<th>ZPD</th>
<th>eReader</th>
<th>Print</th>
<th>Category</th>
<th>ZPD/Book</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>457</td>
<td>3.0-4.6</td>
<td>x</td>
<td></td>
<td>SE</td>
<td>4.6</td>
</tr>
<tr>
<td>002</td>
<td>558</td>
<td>3.5-5.5</td>
<td>x</td>
<td></td>
<td>504</td>
<td>4.5</td>
</tr>
<tr>
<td>003</td>
<td>529</td>
<td>3.4-5.4</td>
<td>x</td>
<td></td>
<td>SE</td>
<td>5.2</td>
</tr>
<tr>
<td>004</td>
<td>207</td>
<td>2.0-3.0</td>
<td>x</td>
<td></td>
<td>ELL</td>
<td>4.2</td>
</tr>
<tr>
<td>005</td>
<td>718</td>
<td>4.2-6.6</td>
<td>x</td>
<td></td>
<td>RE</td>
<td>5.0</td>
</tr>
<tr>
<td>006</td>
<td>465</td>
<td>3.1-4.7</td>
<td>x</td>
<td></td>
<td>SE</td>
<td>4.7</td>
</tr>
<tr>
<td>007</td>
<td>323</td>
<td>2.4-3.4</td>
<td>x</td>
<td></td>
<td>SE, ELL</td>
<td>3.6</td>
</tr>
<tr>
<td>008</td>
<td>568</td>
<td>3.6-5.6</td>
<td>x</td>
<td></td>
<td>504, ELL</td>
<td>4.9</td>
</tr>
<tr>
<td>009</td>
<td>574</td>
<td>4.6-5.6</td>
<td>x</td>
<td></td>
<td>RE</td>
<td>5.0</td>
</tr>
<tr>
<td>010</td>
<td>636</td>
<td>4.1-6.3</td>
<td>x</td>
<td></td>
<td>504</td>
<td>4.9</td>
</tr>
<tr>
<td>011</td>
<td>501</td>
<td>3.2-5.1</td>
<td>x</td>
<td></td>
<td>RE</td>
<td>4.1</td>
</tr>
<tr>
<td>012</td>
<td>565</td>
<td>3.6-5.6</td>
<td>x</td>
<td></td>
<td>SE</td>
<td>5.6</td>
</tr>
</tbody>
</table>

**ZPD:** Zone of proximal development is a range of readability levels from which a student should select books to read.

**SS:** Scaled Score is a norm-referenced score used to compare performance in comprehension.

**SE:** Special education refers to students who have an individualized education plan and have para-professional assistance.

**ELL:** English language learners are provided with 45 minutes of additional services.

**504:** Accomodations are made for these students such as testing in a quiet environment and additional time on assignments.
The participants in this study all attended a school in a suburban community in the Midwest that values education and strongly supports the vision of small class size and use of technology. The school cited in this research was a well-maintained building, which was conducive to learning and aesthetically inviting. The building was divided into three separate pods for each grade level, and was exceptionally clean and free of vandalism.

The KSDE website reported that this school had 54.23% males and 45.77% females, 13.56% economically disadvantaged, and 15.14% minorities in the 2009-2010 school year (n.d). Students with disabilities accounted for 9.86% of the enrollment and ELL students included 2.29%. The school met Adequate Yearly Progress (AYP) and received the Standard of Excellence at all grade levels and subject areas. The school improvement plan concentrated on moving as many students as possible to the next level of success, with an emphasis on improving low indicators, increasing success for students with special needs and economically disadvantaged students, and improving writing in each subject area. It was noted that state assessment reading scores in 2010 decreased for students with special needs.

3.2 Instruments

3.2.1 Formal

To formally assess global comprehension skills, the STAR test was administered to all students in the study. The STAR test is a computerized comprehension test that compares student performance to that of a norm group.
3.2.2 Informal

To informally measure engagement, an engagement sampling sheet was created (see Appendix A). The researcher scanned the class every five minutes within a fifteen-minute period to determine if students were reading, interacting with the text (highlighting or taking notes), off task, talking, or wandering. For data analysis purposes, these categories were collapsed into two composite variables based on conceptualization. A positive engagement category was created that consisted of reading and interacting with the text. A negative engagement category was created that consisted of talking, off task, and wandering.

In order to gather data such as words looked up and pages read by eReader participants, an eReader Step by Step sheet was generated (see Appendix B). Students recorded the pages read and words looked up at the end of each fifteen-minute reading session.

To collect data regarding strategy usage for the print readers, a questioning handout was created, which asked students to record interesting word choice, words looked up, questions, connections, and personal thoughts/observations (see Appendix C). In addition, students in the print group also recorded pages read and summaries on a Step by Step sheet each day (see Appendix D). Strategy usage collection for eReader participants was collected by examining highlighted information, notes, and summaries in the eReaders.

3.3 Procedures

3.3.1 Teacher-based Strategy
The following procedures constitute the everyday expectations in the classroom before the four-week study began. Students in this eighth grade classroom began each class period by participating in Reading Zone. Reading Zone, dubbed after Nancie Atwell’s book with the same title, refers to a time when students read solely for pleasure. There were no notes taken or additional lessons during this time. Students chose their own novel, sat wherever they pleased, and got into the “zone” and read. During this time, students were also able to take an Accelerated Reading test, or visit the library to choose a new novel.

Once Reading Zone was over for the day, students recorded the number of pages read for the fifteen minutes and summarized their reading in two to three sentences on their Step by Step. Step by Steps were collected on a weekly basis and graded for summary quality and completion. When students completed a book, they then went to the library to take an Accelerated Reading test, and placed a star on the reading chart next to their name.

Students also participated in Readers’ Workshop one to two times a week, during which time they practiced comprehension strategies using their novels. Students worked on strategies such as creating connections, questioning, visualizing, inferring, listing vocabulary that was unclear or finding examples of figurative language, strong verbs or unique word choice.

3.3.2 Use of eReaders

Prior to the study beginning, the researcher determined the instructional reading level of students in the eighth grade language arts classroom. The participants in this study were deemed to have comprehension difficulties by evaluating the scores of the
STAR test. Students were chosen for the study by examining the twelve lowest instructional reading level scores. The researcher then dispersed the students into two groups; the control group used print books, and the experimental group used eReaders, specifically Nooks and Kindles, to read during Reading Zone. Students were chosen for the experimental and control groups by taking the lowest and highest in each group and alternating print and electronic books.

In order to be sure students were reading novels in their reading range, the researcher determined the students’ Zone of Proximal Development (ZPD) as indicated by the STAR test given prior to the study. Students were encouraged to read a book of their choice; however, if the book did not fall in the ZPD range, the student was encouraged to choose a different book.

The study took place in the last quarter of the year and lasted for four weeks. The researcher continued to use the summarizing strategy that had been used for the past three quarters, and continued to have students record, on the Step by Step, the pages read during the fifteen minutes Reading Zone at the beginning of each class. Because many of these students have difficulty comprehending text, the researcher encouraged both groups to write questions, look up words, make connections, note comments, and give specific examples of word choice as they were reading. Students using the eReaders were encouraged to highlight text and respond in the eReaders; however, since print users were not able to highlight in the text, they were given both a Step by Step and the questioning handout, as mentioned above. In an effort to monitor engagement, the researcher also scanned the class every five minutes and recorded engagement using the aforementioned engagement chart (see Appendix A). To
determine the correlation between engagement, note taking, pages read, and comprehension, the researcher monitored all components throughout the study—collecting all data weekly. In addition to collecting data from the control and experimental group, the researcher set up a blog for eReader students to use in order to respond to various questions posed by the researcher.

At the conclusion of the study, the STAR test was administered once again. The researcher then compiled the figures gathered from the control and experimental groups to determine if there were differential gains between print books and eReaders.
CHAPTER 4

RESULTS

The purpose of this study was to determine whether using eReaders or print books had an impact on reading comprehension, strategy use while reading, or levels of engagement. The measures administered during this study were a standardized reading comprehension measure, a time-sampling of students’ level of engagement, and an examination of the types of strategies students used while reading. Tables 4.1, and 4.2 show the means, standard deviations, and sample sizes (N) of these different pre- and post-test measures. The data are shown by group (i.e., eReaders vs. Print)

TABLE 4.1

DESCRIPTIVE STATISTICS FOR EREADERS

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion</td>
<td>6</td>
<td>95.50</td>
<td>5.206</td>
</tr>
<tr>
<td>Number of pg read (pre)</td>
<td>6</td>
<td>6.6033</td>
<td>2.23490</td>
</tr>
<tr>
<td>Number of pg read (post)</td>
<td>6</td>
<td>8.6296</td>
<td>3.82578</td>
</tr>
<tr>
<td># of words looked up</td>
<td>6</td>
<td>13.8333</td>
<td>10.53407</td>
</tr>
<tr>
<td>Thought</td>
<td>6</td>
<td>5.1667</td>
<td>3.43026</td>
</tr>
<tr>
<td>Questioning</td>
<td>6</td>
<td>5.5000</td>
<td>5.89067</td>
</tr>
<tr>
<td>Language</td>
<td>6</td>
<td>6.6667</td>
<td>11.03932</td>
</tr>
<tr>
<td>Connection</td>
<td>6</td>
<td>3.0000</td>
<td>2.36643</td>
</tr>
<tr>
<td>Positive engagement (pre)</td>
<td>6</td>
<td>9.3333</td>
<td>3.44480</td>
</tr>
<tr>
<td>Negative engagement (pre)</td>
<td>6</td>
<td>2.6667</td>
<td>4.08248</td>
</tr>
<tr>
<td>Negative engagement (post)</td>
<td>6</td>
<td>.8333</td>
<td>.75277</td>
</tr>
<tr>
<td>Positive engagement (post)</td>
<td>6</td>
<td>14.0000</td>
<td>1.09545</td>
</tr>
<tr>
<td>Star Scaled Score (pre)</td>
<td>6</td>
<td>489.0000</td>
<td>167.28778</td>
</tr>
<tr>
<td>Star Scaled Score (post)</td>
<td>6</td>
<td>553.1667</td>
<td>156.96040</td>
</tr>
</tbody>
</table>
4.1 Statistical Analysis Pre- Vs. Post-tests

Before statistical analysis was conducted, data were examined to determine if they violated assumptions of normality. The Shapiro-Wilks test of Normality was conducted with 10 of the 14 variables demonstrating a statistically significant result indicating that the data are not normally distributed. Thus, nonparametric statistics were utilized. The Mann Whitney U test was used for comparing group data. This test is an alternative to the independent group t-test, when the assumption of normality or equality of variance is not met. This, like many non-parametric tests, uses the ranks of the data rather than their raw values to calculate the statistic.

To address the first research question regarding differences in reading comprehension gains made depending on the condition to which the student was
assigned, gain scores on the STAR test by group were calculated and then compared. Results indicate that while not statistically significant, the differences noted in Table 4.3, approached significance ($p=.055$) with the print students showing greater gains in the global measure of comprehension.

**TABLE 4.3**

**GROUP DIFFERENCES IN READING COMPREHENSION**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Gain</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>eReaders</td>
<td>64.17</td>
<td>86.87</td>
<td>6</td>
</tr>
<tr>
<td>Print</td>
<td>159.67</td>
<td>87.02</td>
<td>6</td>
</tr>
</tbody>
</table>

Figure 1 shows the gain scores from the STAR Scaled Scores by student.

![Gain Scores in STAR Scaled Score](image)

**Figure 4.1 STAR Scaled Score gains for each student.**

Figure 4.1 shows gains in all study participants except one student. Although student two had a slight decrease; the highest gain was made by student eight—both students are under a 504 plan; student eight is also an ELL consult student. Two of the
four highest gains were made by students with special needs. Five out of the six
students using eReaders were noted as making gains from the pre to the post test;
whereas, all six of the print readers made gains. Print users made the highest gains.

To address the second research question regarding differences in strategy use
depending on the condition to which the student was assigned, change scores on the
measures of positive engagement and negative engagement by group were calculated
and then compared (see Table 4.4). Results indicate statistically significant differences
in positive engagement, with students in the eReader group demonstrating greater
growth in positive engagement ($p=.012$). There was no statistically significant difference
in negative engagement, (i.e., talking, wandering, off task) between eReaders and print
students.

**TABLE 4.4**

DIFFERENCES IN LEVELS OF ENGAGEMENT

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean change</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>eReaders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Engagement</td>
<td>4.67</td>
<td>2.88</td>
<td>6</td>
</tr>
<tr>
<td>Negative Engagement</td>
<td>-1.83</td>
<td>3.49</td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Engagement</td>
<td>-.50</td>
<td>2.35</td>
<td>6</td>
</tr>
<tr>
<td>Negative Engagement</td>
<td>-1.00</td>
<td>2.45</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.2 shows the comparison of engagement both before and during the
study for positive and negative engagement between eReader students and print
students.
Regarding positive and negative engagement before and during the study, Figure 4.2 shows an increase in positive engagement for students using eReaders and a decrease in negative engagement for students in the same group. In comparison, the print students had a larger sampling of negative engagement during the study.

To address the final research question about strategy use during reading, data from students’ notes and questions were examined and categorized by theme (i.e., constant comparative method). These themes were then given category names based on conceptualization. Four themes emerged: thought/observation, connecting, language, and questioning. Additionally, students recorded number of pages read and number of words looked up. Group differences in the use of these strategies quantity of reading was examined using the Mann Whitney U test (see Table 4.5). Results indicated that there were statistically significant differences in growth in number of words looked up ($p=0.013$) and connections made ($p=0.030$) with the eReader group.
showing greater growth. There were no statistically significant differences in thought, questioning, language, and pages read between the groups.

TABLE 4.5
DIFFERENCES IN STRATEGY USE AND QUANTITY OF READING

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean change</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>eReaders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought/Observation</td>
<td>5.17</td>
<td>3.43</td>
<td></td>
</tr>
<tr>
<td>Questioning</td>
<td>5.50</td>
<td>3.89</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>3.00</td>
<td>2.37</td>
<td>6</td>
</tr>
<tr>
<td>Language</td>
<td>6.67</td>
<td>11.04</td>
<td></td>
</tr>
<tr>
<td>Words Looked up</td>
<td>13.83</td>
<td>10.53</td>
<td></td>
</tr>
<tr>
<td>Pages Read</td>
<td>2.03</td>
<td>3.05</td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought/Observation</td>
<td>1.50</td>
<td>2.74</td>
<td>6</td>
</tr>
<tr>
<td>Questioning</td>
<td>3.33</td>
<td>4.03</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>.50</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>1.17</td>
<td>1.60</td>
<td></td>
</tr>
<tr>
<td>Words Looked up</td>
<td>.17</td>
<td>.41</td>
<td></td>
</tr>
<tr>
<td>Pages Read</td>
<td>.94</td>
<td>1.50</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.3 shows the number of words looked up per student. Students one through six used eReaders; whereas students seven through twelve used print novels.
In regards to comprehension strategy usage, the researcher looked at several aspects of strategies used to increase comprehension; one strategy being vocabulary (Figure 4.3). The researcher queried if the eReader students would look up the definitions to more unknown words, since the dictionary was at their fingertips. Figure 4.3 illustrates that eReader students looked up eighty-three words in a twenty-day period in comparison to print students who looked up just one word in the same amount of time.

Figure 4.4 continues to relate to comprehension strategies; however, this figure relates to note taking (thoughts/observations, connections, language usage, questions).
Figure 4.4 illustrates a distinguishable difference in the amount of notes taken between students in the eReader group versus students in the print group. One of the most noticeable differences lies in the amount of language usage notes taken by eReader students (figurative language, strong verbs, word choice).

Figure 4.5 shows the gains in pages read by both groups.
Figure 4.5 indicates a gain in pages read by all students except two; one from the eReader group and one from the print group. The results showed the two highest gains in pages read came from the eReader group.

4.2 Field Notes

In order to effectively comprehend text, students must engage in interacting with the text by using comprehension strategies such as questioning, connecting, and understanding vocabulary, in addition to making personal observations and forming thoughts on the text being read. Throughout the study, the researcher gathered data in these areas and created field notes to answer the research questions.

To address the first question regarding gains in comprehension scores, the researcher kept notes on the scores each student achieved in both pretest and posttest on the STAR test. Five of the six students using eReaders reported a gain, with one student in that group reaching a 222-point gain in the scaled scores; however, the print users had the highest gains.

In regards to the question of increased engagement amongst students using eReaders vs. print, it was found that there was a significant increase in students in the eReader group. Students using the eReaders had 84 counts of positive engagement (reading, interacting) with 32 of those tallies accounting for time spent actually interacting with the text (taking notes, looking up words, summarizing).

The final research question, referring to comprehension strategy usage, showed statistically significant differences in words looked up and connections made during reading by the eReader group. Students looked up unknown words 83 times in a 20-day period and made 16 connections during that time. There were no statistically
significant differences in the other categories in either group, however, there were positive strides made towards note taking and comprehension strategies being used more so in the eReaders group vs. the print group. In regards to language, students highlighted and recognized figurative language, precise word choice, and strong verbs 39 times. Students also took notes in thought/observations and questioning 60 times.

While pages read did not show a significant increase in either group, two students from the eReader group had a gain of five or above in the average pages read. Although no students in either group showed a large gain in pages read, the researcher noted that distinguishably more notes were being taken in the eReader group. In addition, the students in the eReader group looked up significantly more words than those in the print reader group. For this group, both tasks took time away from actually reading, presumably resulting in a smaller increase in pages read than anticipated.

The researcher noted that several themes emerged from the field notes that were taken during the study. Specific student engagement and interaction will be examined as it was noted during the research.

One of the questions asked in this study was if using eReaders would engage students more than using print novels. In order to find this out the researcher conducted random samplings of engagement before and during the study. The study did prove there was an increase in positive engagement (reading, interacting w/text) from the students in the eReader group. Interacting with text (i.e. notes taken, words looked up) relates to the second question in the study--comprehension usage strategies. The researcher looked closely at the notes taken on comprehension
strategies and found that there was an increase in interaction amongst the students in the eReaders vs. those in the print group.

One noted increase came from student #2 in the study. This student had particular difficulty in the language arts classroom and had a 504 plan. She rarely completed summaries when reading, had difficulty expressing herself, and struggled in writing. As she used the eReader, it was noted she seemed to be very focused and spent quite a bit of time typing on her Kindle. After examining her notes at the end of the study, the researcher found two themes in note taking that strongly emerged—questioning and personal thoughts/observations. The student’s notes were very animated and frequent. She was noticeably exploring the characters and commenting on their actions. She also had numerous clarification questions throughout the pages read. When something was implied, rather than clearly stated, she questioned it. In addition, she looked up 26 words during the course of her reading.

Although this student only had a minor increase in the pages read during the study, this may be attributed to the fact of increased notes taken during the reading. The student did seem engaged, but the comprehension actually took a slight decrease in the STAR test. This could be due to the fact that the STAR test did not test on the book students were reading. Another contributing factor may be that this student stops too often to annotate, having an opposite effect on comprehension.

Another notable improvement was student #4 in the study. This student was an ELL student who had an extremely low reading level. Although she was the only student reading above her ZPD, she did a commendable job in both note taking and increasing her pages read. The researcher noted that while taking extensive notes in
word choice and connections, this student did not actually use the eReader to type notes, but rather only highlighted. The researcher then went through page by page and the student explained the reason for each highlight. The theme in note taking that emerged in this student was language. The student found numerous examples of figurative language and precise word choice throughout the reading. She also had several connections. In addition, the number of pages read increased approximately an average of five pages. It should also be noted that this student also looked up nineteen words during the reading as well. She felt that the online dictionary helped her understand difficult words and allowed her to move on with text, rather than skipping over unknown words.

In contrast to these students, there was one student in the eReader group who took no notes whatsoever. He did summarize on a daily basis, but when asked about notes, he stated he “didn’t really have any questions” or “there weren’t any hard words.” He did claim to have taken some notes, but did not bookmark them, so they were not retrievable on the Nook. However, this student did have the greatest increase in pages read between both groups.

After examining notes taken on the handouts from students in the print group, the researcher found that notes were not very detailed. Most notes asked a simple surface-level questions from the reading or restated information. There were very few language notes taken, and even fewer connections made. In addition, out of the six students in the print group, only one student used the dictionary to look up a word.

The most common theme in the field notes cited by the researcher was that of attitude. Students in the eReader group, who otherwise read on a daily basis because
they had no choice, became more interested in reading and immediately got their Nook or Kindle and started reading. There were fewer reminders to settle in for the eReader group vs. that of the print group. Student #5 was one of the students who frequently needed to be reminded to settle in and not disrupt others; however, that behavior decreased with the implementation of the eReaders. He enjoyed the technology, and felt as if he were texting when he was taking notes (a common theme amongst students using the eReaders). He also took notes on literary elements, observing possible foreshadowing and character analysis several times in his notes.

Although this was a short study, with a limited number of students, the eReaders did seem to benefit students who seemed to tire easily when reading print. It can only be presumed that if the study were extended and offered to a larger range of students who were interested in integrating technology with reading, the results may show increased benefits in using eReaders in comparison to print.
CHAPTER 5
DISCUSSION

5.1 Hypotheses

The purpose of this study was to determine if the use of eReaders in the classroom would increase comprehension, engagement, and the use of comprehension strategies more so that the use of print novels. The research showed that students using eReaders did show significant increases in positive engagement, word look up, and connections made in comparison to print users. Students in the print group did show approaching significance in comprehension gains.

As studies continue to show a decline in reading scores (NEA, 2007), and reports indicate over eight million students in grades 4-12 being identified as struggling readers (Biancarosa & Snow, p. 3), it is imperative that educators implement tools to improve achievement in reading. As noted by the authors of *Reading Next*, lack of comprehension is the leading cause of students performing poorly in reading and recommends that teachers provide students with a daily regimen of comprehension strategies, motivation, technology, and time to read in order to increase performance levels (p. 3). Atwell (2007) echoes the ideas of allowing choice, allotting time, and highlighting noteworthy information while reading, throughout her book entitled *The Reading Zone*.

Although the research in the classroom followed Atwell’s suggestions of giving students the opportunity to choose their own novels, and provide the time to allow students to read for enjoyment, the current study also incorporated suggestions from
the Reading Next study, which suggested adding technology, motivation, and comprehension strategies during this time as well (Biancarosa & Snow p. 3).

Before the research in this classroom began, the researcher had a daily routine of students entering the classroom and immediately reading (Reading Zone). Reading Zone served as the “warm up” activity in the classroom. During this time, students read the book of their choice, purely for pleasure, for fifteen minutes per day. The only comprehension strategy students were asked to complete was to complete a summarizing sheet at the end of the fifteen minutes of reading time. Although most students seemed to engage in the reading during this time, there continued to be some difficulty persuading struggling and reluctant readers to focus and settle in at times. Many of these students also had low comprehension scores, which prompted the researcher to search for new methods to motivate these less than motivated readers.

In Reading Next, another recommendation for increasing comprehension in adolescent readers was to incorporate technology into reading (Biancarosa & Snow, p. 16). Since students live in such a technological society, it only made sense to use technology as a motivational and learning tool to increase students’ interest in reading. Lotta Larson, a K-State professor, completed several studies bringing technology, reading, and comprehension strategies together for students. Her latest study brought Kindles, portable eReaders, into a second grade classroom to see how two readers would benefit from the use of technology and reading combined (Larson, 2010). In another study, Larson used electronic reading workshop (ERW) and electronic reading to determine if responding to text electronically would improve reading responses and
text interaction (Larson, 2009). Both studies yielded positive reactions from the participants, and allowed students to have a more optimistic outlook on reading.

Incorporating methods from Larson’s studies, suggestions from *Reading Next*, and procedures from Atwell’s book *The Reading Zone*, the researcher embarked on a twenty-day study to improve comprehension, increase engagement, and intensify usage of comprehension strategies by introducing eReaders into the classroom to determine if they might yield more positive results than the use of print books alone.

### 5.2 Conclusions

The students in the focus group used eReaders, specifically Nooks and Kindles, to read novels of their choice and the control group used print novels. The novels were in each student’s Zone of Proximal Development (ZPD); however, because the experimental group used eReaders, others could not tell the difficulty or size of the books being read. This proved to be a positive for low-level readers, and validated the thoughts of Kathy Schrock who indicated that students using eReaders need not feel “different” from their peers (Schrock, 2006).

Students in each group were encouraged to summarize, question, record personal thoughts, examine word choice, connect with the text, and look up unknown words. This directly connected with the *Reading Next* study that suggested students use these comprehension strategies to think about their reading and to use direct explicit comprehension strategies (Biancarosa & Snow, p.14). However, it did contradict Atwell’s beliefs that students should read for pleasure and not have “busy work” attached to pleasure reading (pp. 50-66). The classroom results in this study indicated there were significant increases in words looked up and connections made.
with the text within the eReader group, while the print users did not show significant
differences. Neither group showed a significant difference in the other comprehension
strategy usages; however, the students using eReaders took more notes. Atwell states
that while she encourages her students to notice language, highlight text and write
notes, she does discourage the idea of making connections while reading. Atwell feels
this could be a distracter and actually hinder the students’ understanding of text (pp. 58-
61).

As the notes were evaluated, the researcher did find personalities emerge from
students using eReaders more so than that of the print readers. Notes from eReader
students were more detailed and had deeper meaning than the surface level questions
being asked by print readers. As noted in Larson’s study, this could prove helpful to the
classroom teacher in order to guide instruction, and to further develop knowledge of the
students’ thought process while reading (Larson, 2010).

As the researcher looked at engagement of students in both the print and
eReader group, it was concluded that the eReader group had a statistically significant
increase in positive engagement during the study in comparison to the print group.
Reading Next discusses the need to build student engagement and motivation in order
to keep students interested in reading. One suggestion in a key to engagement is to
allow students choice. Although both groups in the study were given choice, the
eReader group made differential gains in positive engagement (reading and interacting
w/text). One may conclude that in addition to self-choice, adding the technology
component to the study could have led to increased engagement, since technology may
act as a motivating factor to some students. As stated in the Reading Next study,
“Effective literacy programs therefore should use technology as both an instructional tool and an instructional topic” (Biancarosa & Snow p. 19).

Although comprehension gains were measured in this study, the test used was a global comprehension test, not book specific. Due to the limited amount of time, most students were unable to complete their books in the timeframe given for the study. If the books had been completed, the researcher would have administered an Accelerated Reading test, which is a book specific comprehension test—instead, students were given the STAR test. The students in the print group showed greater gains in their posttest in comparison to the eReader group. All students, except one, reported gains in the post STAR test. During a test such as this, students solely read passages, and then answer passage-related questions. The success in this test could correlate to Atwell’s beliefs in reading comprehension in which students read solely to absorb text without engaging in accessing comprehension strategies (pp. 50-65), rather than the premise set forth by Reading Next regarding comprehension that states students should work on varied comprehension skills during reading. It should be noted that the student who did not display gains was the same student who took numerous notes on the eReader throughout the study. This could relate to Atwell’s theory that too much questioning and thinking, may lead to “irrelevant bumps” that distract the reader (pp. 58-59). It may also be questioned if the approaching significance comprehension gains exhibited by the print readers had to do with the condition or the nature of the test.

In addition to the research data, the study also helped to examine the differences between print and eReader from a financial standpoint. Although there were upfront costs in the purchase of the eReaders and the eBooks, these were one-time purchases.
The purchase of one $5.00 book allowed for download to eight eReaders. In addition, these books will be available to students indefinitely. Since eBooks cannot be damaged, they will not need to be repurchased, and they cannot be lost.

In a time where our nation is in an educational budget crunch, eReaders may be a way to alleviate some of the financial burdens classrooms and schools face. Taking the lead from a high school in Florida who recently traded in their hard copies of textbooks for electronic versions loaded on Kindles (Catalenello, 2010), eReaders may be the way to not only reach students, but to reach our goals to maintain a balanced budget in our schools as well.

5.3 Limitations of Study

As with any research, it is always important to reflect upon the project as a whole. There were aspects of this study the researcher believes could be expanded upon or additions to the study that may be helpful in future research.

One of the greatest limitations of this study was the small sampling of students and the short amount of time given to the study. Due to funding issues and technology problems, the study took place in the fourth quarter of the year. If this study were to be replicated, it would be suggested to begin the study at the start of the new school year, in order for students to use the eReaders in conjunction with learning reading comprehension strategies. In addition, it would be beneficial to allow as many students as possible to be in the study in order to create a larger sampling of students in each condition.

In addition, when looking at the question of which group, experimental or control, had the most page gains, it would be helpful for students to focus on reading only during
Reading Zone, then work on strategies during Readers’ Workshop times. This could possibly give a better picture of how many pages students are truly reading during Reading Zone time. If students are taking notes during that time, it may compromise the computation of actual reading time. In addition, if students are reading more pages, they are likely to be taking fewer notes. This requirement might also indicate whether or not the actual looking up of words alone was the reason for fewer pages being read.

With regards to the research question regarding comprehension gains between the two conditions, the researcher would suggest using scores from Accelerated Reader to determine gains. STAR would still be an appropriate indicator to choose the participants, but AR would be a better measure of comprehension, since it is book specific and would be within each student’s reading level. In order to use the AR tests, the study would need to last long enough for students to complete their novels.

When examining comprehension strategy usage of students using eReaders, the research showed students in this group took more notes in comparison to the print group. After examining the notes, it was determined that it may be beneficial to conduct a future study to analyze the content of the notes taken in order to identify the issues students might be having with the reading in order to verify if the notes are indeed related to better comprehension or a hindrance to comprehension.

5.4 Efficacy of eReaders

There were additional aspects to this research that the data did not reveal. Although the following information does not directly correlate to the research questions in this study, it was important to examine the efficacy of the devices for future purchases.
Before embarking on this study, the researcher gathered information of several types of eReaders. After investigating the numerous types of eReaders out on the market, the researcher decided to use Kindles and Nooks for this study. Both eReaders allowed students to highlight information, take notes, and bookmark, which was imperative to the study. The Kindle had a keyboard for note taking, while the Nook had touch screen. As stated, students may highlight text and take notes on both; however, the researcher found that the Kindle was much more teacher-friendly when attempting to retrieve the notes. Kindle allowed all notes and highlights from a book to be viewed with the touch of a button. On the other hand, Nooks needed to be bookmarked by the student each time a note was taken, and the bookmarks had to be called up one by one to retrieve the notes from each student. This was very time consuming when compiling large numbers of notes and was also frustrating to students when they forget to bookmark.

Another point to consider was the Nooks had a much longer start up time in comparison to the Kindle, reducing the amount of time students for the Nook students to read. In addition, the Kindle featured text to speech; whereas the Nook did not. Text to speech can prove to be an asset, when using eReaders with struggling readers and students with disabilities. In contrast, the Nooks featured page numbers in all books whereas the Kindles used for this study did not. Recently, Kindles had an upgrade which allowed many of the books to have page numbers added, but at of this writing, they are still in the process of converting. Not having access to exact page numbers proved to be difficult and confusing to students when they were attempting to record the number of pages read at a given time.
Another consideration with using eReaders is ensuring all units are charged. In this study, this was usually done at the beginning of the week, and the charges lasted until nearly the end of the week, unless the unit was connected to the wireless. If the book ran out of a charge, the student sat next to a plug-in to read—sometimes not the most ideal situation.

The wireless had its own set of issues as well. The very first day of using the eReaders, one of the students using the Nook found his way onto the web and spent time on the Internet, rather than reading. Needless to say, close monitoring needs to be a key factor while using eReaders, the same as with many other uses of technology in classrooms.

The last consideration educators must think of when using eReaders rather than print books is the fact that students were only able to use the eReaders in the classroom. Students were not allowed to check out the eReaders for at home use, so they could only read their books in school. Because students were normally encouraged to read outside of school, they had to read an at-home print book and an in-class book. In order to give all students equal reading time throughout the study, print users only read their books in class and had a separate at-home book to read also.

These points of consideration should be thought of as possibilities rather than pitfalls. As with any new method, there are numerous lessons to learn in its early and continuing use.

As often noted, statistical data do not always show all of the benefits of research. Throughout the four weeks of eReader usage, many positive trends
emerged, not solely from students in the study, but from students in the classroom using the eReaders who were not a part of the research.

One student, a student with special needs, comes to mind as one of the success stories from this research. Although this student did not qualify for the study due to his STAR pretest score, s/he had had extreme difficulty throughout the year completing books and staying focused on what s/he was reading. S/He emphatically expressed interest in using the eReaders when they were introduced, and the researcher thought this could possibly improve the attention to the text. Using the eReader not only improved engagement, but changed this student’s attitude towards reading. S/He was the first one to pick up an reader and the last to put it back each day during Reading Zone. Once s/he found the text to speech feature, s/he began using the feature regularly and expressed a better understanding of the text. In the past, this student was extremely inconsistent handing in Step by Step worksheets, but since using the eReader, s/he summarized on a daily basis. S/He is also in the midst of attempting to complete a print novel started in the second quarter of school. In a recent comment on our blog s/he stated, “The Kindle is the best invention since television.” S/He nearly completed the eBook in the four weeks and asked for a Kindle as a birthday gift.

Another positive aspect of the study was watching the students engage in conversation regarding the eReaders. Students wanted to test the eReaders, without being asked to do so. eReader students and print students asked to try both types of eReaders throughout the study. Students who did not want to use an eReader in the beginning of the study, have asked to put their name on a waiting list. Students, who were using the Nook, have asked to try Kindles and visa-versa. Students have even
asked their parents, who own eReaders, if they could borrow theirs to take to school. Students have put eReader apps on their phones as well. It seemed that bringing the technology aspect into the reading did serve as a way to create more interest in reading for many students. However, there were three students did give up their eReader. These were not students in the study, and all three happened to be high-level, avid readers. When asked the reason, they just felt it was not for them—one student did not like the fact it could not be read at home. Another stated, “I like to see a 500-page book in my hand and know I read this—it makes me feel like I accomplished something.”

Before embarking on this study, the researcher gathered information of several types of eReaders. From a student’s point of view, most liked the Nooks because they had touch screens, and similar to using their phones. The Nooks also have color on the bottom of the screen, so that may have played into the equation as well.

Students also felt note taking and summarizing were much easier because actual writing was not involved, and they felt as if they were texting. This was also helpful to students who have difficulties with handwriting. The favorite features included word lookup and adjusting the text size. Students expressed that they normally would never get up and look up a word in a dictionary, but it was easy using the eReader because all they had to do was push a button. They also liked adjusting text size to their own preference. As stated by one student in the blog, “It lets me stay focused on a certain section.” Another student told the researcher, “I squint a lot when I read, but I don’t have to when I make the text bigger.” It could be argued, that there was an increase in words looked up or notes taken in the eReader group vs. the print group due to the fact that students were exploring with something new, or it could be that technology truly did
prove to be a motivational tool in this study. Whatever the reason, it is also possible that the amount of time spent in these activities highly influenced the number of pages read.

5.5 Future Studies

In addition to fine-tuning various components of the current research, the researcher has several suggestions for future studies that may be beneficial in raising comprehension and engagement in adolescents. One future study that may produce interesting results would be to research the effects of the eReaders on student with special needs only. Although many students with special needs are low readers, some are not, but have other problems such as attention disorders, dysgraphia, dyslexia, etc. It would be interesting to see the effects the eReaders have on the completion rate of books, comprehension gains, and manipulation of tools of students with special needs.

In addition to having a focus group of students with special needs, it would also be interesting to see how the eReaders are used by high-level readers or gifted students. It is possible these students could take the eReaders to a new level by using them not only for reading books, but to conduct research and complete additional readings or activities that could be loaded in PDF format onto the eReader.

Lastly, it would be interesting to look at the usage of eReaders in a gender-based situation. Would boys be more apt to read, if technology were a part of the reading process? Or is it the content of the reading that needs to be different for boys versus girls? Would boys be more focused on the actual reading of the book in an environment that would not allow access to the Internet?

As we search for ways to improve reading skills in adolescents, comprehension is the key to success. If educators infuse components to increase comprehension into
the curriculum, success may be within reach. As technology progresses, eReaders will find their way into schools more frequently. The possibilities of future research using eReaders in the classroom are endless. There could possibly come a time, in the not so distant future, when all a student will need to do is pick up an eReader and have access to the school library and classroom resources at his fingertips.
REFERENCES
REFERENCES


APPENDIXES
APPENDIX A

Student Engagement Sampling

Engagement Sampling

Date: ____________

<table>
<thead>
<tr>
<th>Reader</th>
<th>Wandering</th>
<th>Reading</th>
<th>Talking</th>
<th>Off Task</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

eReader Step by Step

Name: ___________________________  Book: ___________________________

Date: ___________________________  Author: ___________________________

Date: ________, 2011  Read from page ________ to ________

Words I Looked up today:
_____________________________________________________________________________________
_____________________________________________________________________________________

Date: ________, 2011  Read from page ________ to ________

Words I Looked up today:
_____________________________________________________________________________________
_____________________________________________________________________________________

Date: ________, 2011  Read from page ________ to ________

Words I Looked up today:
_____________________________________________________________________________________
_____________________________________________________________________________________

Date: ________, 2011  Read from page ________ to ________

Words I Looked up today:
_____________________________________________________________________________________
_____________________________________________________________________________________
APPENDIX C

Print Book Questioning Handout

Use this handout to record any questions or comments you may have as you read. You may include connections, questions, things the author says that makes you think, laugh, etc. Also include any sentences/pasages from the book that you think the author did particularly well in using description or word choice. At the end of each section, write the words you looked up during your daily reading.

Monday

I looked up these words today:

__________________________________________________________________________________

__________________________________________________________________________________

Tuesday

I looked up these words today:

__________________________________________________________________________________

__________________________________________________________________________________

Wednesday

I looked up these words today:

__________________________________________________________________________________

__________________________________________________________________________________

Thursday

I looked up these words today:

__________________________________________________________________________________

__________________________________________________________________________________

Friday

I looked up these words today:

__________________________________________________________________________________

__________________________________________________________________________________
## APPENDIX D

### Step by Step Worksheet

<table>
<thead>
<tr>
<th>Title of book</th>
<th>Date</th>
<th>Author's last name</th>
<th>From page</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**My question**

<table>
<thead>
<tr>
<th>Title of book</th>
<th>Date</th>
<th>Author's last name</th>
<th>From page</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**My question**

<table>
<thead>
<tr>
<th>Title of book</th>
<th>Date</th>
<th>Author's last name</th>
<th>From page</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**My question**

<table>
<thead>
<tr>
<th>Title of book</th>
<th>Date</th>
<th>Author's last name</th>
<th>From page</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**My question**

<table>
<thead>
<tr>
<th>Title of book</th>
<th>Date</th>
<th>Author's last name</th>
<th>From page</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**My question**

From Donna Moore, ELD Teacher, Fritz Intermediate, Garden Grove, CA. Reprinted with permission.