Summer 8-2016

An Investigation of Fifth Graders' Reading Strategies When Reading Digital Texts in Regard to Overall Retention of Content Material by Proficient and Non-Proficient Readers

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AN INVESTIGATION OF FIFTH GRADERS' READING STRATEGIES WHEN READING DIGITAL TEXTS IN REGARD TO OVERALL RETENTION OF CONTENT MATERIAL BY PROFICIENT AND NON-PROFICIENT READERS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

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Indiana University of Pennsylvania

August 2016

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Title: An Investigation of Fifth Graders' Reading Strategies When Reading Digital Texts in Regard to Overall Retention of Content Material by Proficient and Non-Proficient Readers

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The purpose of the qualitative research study was to investigate how proficient and non-proficient fifth grade students comprehend digital text material in regard to overall retention. Twenty-eight fifth grade students from an elementary school in northeastern Pennsylvania participated in this study.

Those who fit specified criteria including the following were invited to participate in the study: student is in fifth grade in the specified elementary school, does not receive Special Education services, and scored either Advanced, Proficient or Basic on the Grade 4 PSSA.

This research study consisted of two phases: a pilot study and the study. Student interview questions were developed from a thorough review of the literature and the participants were asked to reflect on and describe how they comprehend a selection of digital expository text on a computer through the use of reading strategies and digital tools.

At the end of the selected text, the participants answered comprehension questions to assess the skills of determining importance, finding supporting details, making inferences and recall. The non-proficient group scored higher on the two questions that

assessed making inferences and recall, while the proficient group scored higher on the questions assessing the skills of determining importance and finding supporting details.

An interesting finding that differs from previous research conducted surrounding reading strategy use by proficient and non-proficient readers, is that nearly the same number of participants from each group reported using strategies in this particular study. This finding could be attributed to the small population size or due to self-reporting by the participants. All of the participants reported using at least one reading strategy in order to make meaning of digital expository text.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my dissertation committee: Dr. Robert Millward and Dr. Rhonda M. Sutton, co-chairs, and Dr. Douglas Lare, committee member. I truly appreciate the guidance, wisdom and support that they have given me throughout this journey. This process has been a difficult one, but I am thankful that my committee continued to encourage and teach me, advocating for me to see this to completion. This experience has allowed me to think more critically and deeply about research and has stretched me beyond my comfort level on many occasions.

I would also like to thank my editor and friend, Mrs. Pamela Colton and also my friend, Ms. Leslie Raser at East Stroudsburg University who always reached out to help and encourage me in any way she could. Also, I would like to thank my friends and colleagues in the Bangor Area School District for their support and understanding during this process.

I would not have been able to complete this research without the permission of the Bangor Area School District, in which my pilot study was conducted, and the Northampton Area School District who granted me permission to conduct my main study. I am thankful for the teachers who have assisted me during the two phases of my study: Mrs. Jessica Palmeri at DeFranco Elementary School and Mrs. Trish Meleski, at Lehigh Elementary School. In addition, many thanks to my dear friend Dr. Lori Kuhns, Principal of Lehigh Elementary School, who has given me much encouragement and assistance throughout our years together during our doctoral coursework, and then finally through this dissertation phase.

I also wish to thank my wonderful family. I am thankful for my loving parents, Brenda and David D. Brands, III who gave me a strong sense of security and a nurturing environment. I also thank my maternal grandparents Jean and "Bob" Stiles who selflessly raised my brother, sister and I when we lost our parents at a young age, and who made sure that I continued my education, even when it was difficult. To my brother, Robert D Brands, Sr. and my sister Krista J. Brands- I am grateful for the tight bond that we continue to have and thank you for your encouragement and support. I would be remiss if I did not also thank my paternal grandparents, Kathryn and David D. Brands, Jr. and the many friends who rallied around my siblings and me to always offer encouragement and support.

I would like to thank my children Keith and Emily Perrotta for the patience and love they have shown me throughout this journey. They have been with me from the beginning, and it is my belief that they have learned as much from this experience about the importance of education and perseverance as I have. Thank you to my stepchildren, Sara and Brandon Martinez who joined our family in the middle of this journey and who have shown me encouragement and love. To my husband Mark- thank you for your understanding, patience and love. I appreciate your continual encouragement, care and sacrifices that you have made so that this dream of mine could become a reality. Here's to the many hours we sat together at Wegman's café while I researched and wrote!

I thank God for not only sustaining me throughout this process, but also throughout my entire life. He is my true source of strength.

I dedicate this dissertation to Margaret L. Mace, my Aunt "Margie", who was my biggest encourager when I was young, and an educator for approximately forty years.

From the time I was a little girl, she instilled in me the love of reading and the importance of an education. She always made me feel smart and taught me that I could do anything with hard work. Her influence and support have greatly impacted my life, both personally and professionally and I am forever grateful to her.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Reading comprehension opens the door of opportunity to becoming literate and informed citizens. For readers who easily comprehend text, the words fall into place seamlessly to form a complete idea. By the time students reach fourth grade, they are expected to comprehend expository text from their textbooks. For readers who struggle with comprehension, the act of reading can be drudgery. Due to an absence of foundational literacy skills such as phonemic awareness, phonics, and fluency, these readers often struggle to comprehend expository text because they have not been able to master the skill of decoding (Keene, 2011). To that end, Fisher & Frey (2015) posit that all students need experiences with a range of texts and that elementary students need foundational reading skills developed parallel with comprehension skills, especially in expository text. Comprehension skills are needed to determine what the text says explicitly, to make logical inferences, and to be able to cite specific textual evidence to support conclusions drawn from the text.

There are several challenges that the typical fourth or fifth grade student faces with regard to reading expository text. Classroom materials are often difficult to understand and are uninteresting (Guthrie & Klauda, 2012), making it a challenge to inspire students to read them. The Rand Reading Group (2002) notes that although content-area teaching often relies on textbooks as one of the primary sources of instructional content, reading instruction is rarely effectively integrated in content-area classrooms. Children need to read and comprehend well if they are to learn what is expected of them beyond third grade.

According to Keene (2011), students who comprehend well will use reading strategies to learn new concepts, get deeply involved in what they are reading, critically evaluate what they read, and apply their new knowledge to solve practical and intellectual problems. Most researchers and practitioners agree on the following core set of reading strategies: (a) activate background knowledge, (b) question the text, (c) draw inferences, (d) determine importance, (e) monitor comprehension, (f)) reread and employ fix-up strategies, (g) use sensory images, and (h) synthesize. Reading strategies give readers a way to interact with the text when reading material is too difficult. The reading strategies do not change as students progress through the grades; only the complexity and sophistication of the text changes (Tovani, 2011). Recently, with national education reforms such as the Common Core State Standards (CCSS; National Governors Association Center for Best Practices [NGA Center] & Council of Chief State School Officers [CCSSO], 2010) new light has been shed on literacy skills that include higher-level thinking and that place technology (digital literacy skills) at the forefront, placing unprecedented demands on students' proficiencies (Leu, Forzani, Burlingame, Kulikowich, Sedransk, Coiro, & Kennedy, 2013).

It is necessary to understand how students navigate through and interpret digital expository text through the use of reading strategies. Each reading act is unique, which points to the need to know how to use and adapt a repertoire of skills and strategies to be able to comprehend different texts in different circumstances. Online reading requires the skills necessary to navigate multimodal texts where the text is represented in a range of images, fonts, colors, and other multimodal resources. In addition, skills to read multiple sources and to multi-task need to be considered (Coscarelli & Coiro, 2015).

Overview of the Issues

In today's classrooms, many students struggle with comprehending expository text (Ramsey, Sperling, & Dornisch, 2010). With full implementation of the PA Core Standards (PA Core) now in place, there is a strong emphasis on reading expository text in print as well as reading the content on a computer screen. When students begin the intermediate elementary grades (4-8), they find that textbooks have become extremely important in their courses. Nearly one-half of middle school students find science and history books intimidating and struggle with comprehension due to issues such as dry and uninteresting text and lack of comprehension skills (Guthrie & Klauda, 2012). With the implementation of the PA Core and its emphasis on reading digital expository text, together with the increasing amount of digital text available in the classroom, it is imperative to examine how fifth grade students approach and make sense of digital expository text in order to be ready for the rigor of reading that is necessary in secondary school.

Statement of the Problem

One of the major reasons that students struggle in reading is due to a shift in the type of reading that is expected in the intermediate grades, yet there seems to be no shift in the type of reading instruction that students receive in the intermediate grades (Rand, 2002). Today's fifth grade students need the skills and strategies to understand expository text in the content areas. Researchers have found that elementary students have difficulty in making the transition from reading storybooks in the primary grades to reading expository text in the content areas in the intermediate grades. This issue is compounded with the requirements of PA Core, which increases the amount of

expository text required in fifth grade as well as integrates the new literacies of online research and comprehension. With the increasing amount of digital text available to use in today's classrooms, together with the implementation of PA Core, it is necessary to examine how fifth graders make meaning of digital expository text.

Purpose of the Study

The purpose of this study was to investigate how proficient and non-proficient fifth grade students comprehend digital text material in regard to overall retention. Goudvis and Harvey (2000) emphasize the importance of interacting with text in order to truly understand what is being read. It is essential that students comprehend expository text in order to be successful in school. The PA Core includes anchor standards for the new literacies of online research and comprehension, and students are being held to a higher standard with regard to the comprehension of expository text (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

In this qualitative study, fifth grade students engaged in the reading of expository text in an online environment. This study involved the analysis of the reading strategies that fifth grade students utilize while reading online. The findings of this study provided valuable information and insight as to what strategies fifth grade students use when they attempt to read digital expository text and what their retention rate is of the content material.

Research Questions

1. What strategies do fifth grade students use in order to make meaning of digital expository text in an online environment?

2. What do proficient and non-proficient fifth grade readers do when the reading material is difficult to comprehend?

3. Are there specific features of digital text, such as hyperlinks, that interfere or help to improve the proficient and non-proficient fifth grade reader's comprehension?

Overview of Methodology

The goal of this qualitative study was to investigate how elementary students approach and interpret digital text. This information was gleaned by interviewing each student after reading a specific set of paragraphs on the computer. The study included a group of 28 fifth grade volunteer students.

Definition of Terms

The following section contains definitions of terms that were used in the qualitative case study.

Digital text- the electronic version of written text (Transforming Literacy, n.d.).

Hypertext- computer-based text that is a network of links between words, ideas, and sources, one that has neither a center nor an end (Snyder, 1998, p. 127).

Expository text- text that includes complex concepts, specialized vocabulary, and unfamiliar text structures (Weaver & Kintsch, 1991).

Reading strategies- deliberate, goal-oriented attempts to control and modify the readers' efforts to decode text, understand words, and construct meanings of text (Afflerbach Pearson, & Paris, 2008).

Limitations

This research study included a specific population within a Northampton County elementary school and therefore will include findings that may not be representative of a different school population.

Significance of the Study

We know that many high school students struggle to comprehend expository text, and with the implementation of the PA Core, now it is more important than ever for students to be able to access and comprehend digital expository text in an online environment. It is imperative to understand how elementary students approach and interpret expository text and to investigate what these students do when their comprehension begins to break down. After interviewing fifth grade students who read digital expository text on the computer, assessing their comprehension, and analyzing how they approached the text, some answers were gleaned as to how they read the digital expository text and why high school students continue to struggle.

Organization of the Study

This research study was organized into five chapters. Chapter One of this qualitative study provided an overview of the study emphasizing that many high school students struggle with the comprehension of expository text and how imperative it is to understand how students at the elementary level access and make meaning of digital expository text so that they can be successful in secondary school and eventually in college.

This study continues with Chapter Two, which will present a synthesized review of the literature related to the topics associated with this study together with the

theoretical underpinnings of this study. The methodology and design will be discussed in Chapter Three. Additionally, this chapter will provide an explanation of the subject selection process and data collection. Finally, the procedures for data analysis will be described.

Chapter Four will provide a detailed report of the research results. This chapter will identify and discuss themes that emerged from the interviews, notes, and comprehension questions. The study will finish with Chapter Five, which will include an introductory paragraph, a summary of research findings, research implications, recommendations for further research and a chapter summary.

Chapter Summary

Studying the reading strategies that fifth grade students utilize in an Internet setting will provide insight to understand how they make meaning of digital text. This information will permit educators to better support our students in the digital age. By aligning literacy efforts in preschool and elementary grades with middle school and high school, a continuum of instruction and learning will be assured (National Council of Teachers of English, 2009). Much research has focused on the use of reading strategies in traditional print (e.g. Cho (2013), Coiro (2011), Ness, (2007)), but little research exists on how elementary students interpret digital expository text. Of interest in this research is the nature of elementary students' reading processes and their cognitive strategies in an online environment. This study serves to close the gap that exists with reference to how elementary students interpret digital expository text. Barone (2012) states, "The challenge for researchers will be to document the changes in literacy acquisition of young children as they experience digital media and traditional forms of literacy simultaneously" (p. 8).

Thus, this research study will add to the literature by documenting the changes made and offer a selection of strategies used by elementary school students.

CHAPTER 2

REVIEW OF THE LITERATURE

Currently there are 36 million adults in the United States who are either illiterate or have low-level literacy skills. Furthermore, one in five adults cannot access or use the Internet, thus creating a digital literacy divide (www.proliteracy.org). Studies show that one in six students who are not reading proficiently by third grade fail to graduate from high school on time. This is four times higher than the number for third graders who read proficiently (Hernandez, 2011). These alarming statistics coupled with the implementation of the PA Core demonstrate the need to analyze how elementary students interpret digital text with the hopes of gaining insight as to why many high school students still struggle with comprehending printed/digital material.

Researchers like Durkin, Goudvis and Harvey, and Reinking and Schreiner have all contributed to the definition of reading comprehension. Durkin (1978-1979) equated comprehension with reading and comprehension instruction with teaching children the meaning of a unit that is larger than a word and teaching them how to work out the meaning of such units. Reinking and Schreiner (1985) stated that reading comprehension is "an active cognitive process requiring the reader to interact with text-based information and to monitor comprehension in a quest for meaning" (p. 536). Goudvis and Harvey (2000) pointed out that reading encompasses both decoding and interpreting. Furthermore, they stated that a two-prong attack is necessary for reading. The first prong is to crack the alphabetic code to determine the words, and the second is thinking about those words in order to construct meaning. As these aforementioned researchers have found, reading comprehension is about making meaning of text, which is an essential

literacy skill.

The review of the literature examined studies and research regarding applications of reading strategies in digital text, and how students interpret digital expository text.

Theoretical Basis

Research for this study began by investigating how elementary students make meaning of digital expository text through the use of text features and strategies. Through this quest for information, two theories emerged surrounding this topic: metacognition and the New Literacies of Online Research and Comprehension.

Metacognition

Metacognition forms the foundation for the use of reading comprehension strategies and is one lens on which this study is based. Metacognition consists of three components (Chen, 2009). The first component was defined by psychologists Flavell (1976) and Brown (1978) who investigated how children develop knowledge and when they gain control of their cognitive processes. According to Flavell (1976), metacognition refers to "one's knowledge concerning one's own cognitive processes and products or anything related to them" and also to "the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective" (p. 232). Since then, there has been much research done on metacognition and its effect on reading comprehension (e.g., Baker & Brown, 1984; Garner, 1987; Gourgey, 1998; Hacker, 1998; Mastropieri & Scruggs, 1997; Paris, Wasik, & Turner, 1991; Schraw, 1998; Forrest-Pressley & Waller, 2013; Humphries & Ness, 2015; Othman, Mahamud & Jaidi, 2014).

Readers with metacognitive knowledge can determine text difficulty, topics of interest, what the testing format may be, and how to answer test questions by selecting various strategies or acquiring resource materials (Chen, 2009). Put simply, metacognition is two-fold: thinking about one's thinking and the self-monitoring of one's comprehension.

Self-monitoring or self-regulation is the second metacognitive component. Self-regulation first appeared in Brown's (1980) descriptive study of reader-controlled strategies. Brown (1980) identified strategies such as text selection, comprehension monitoring, self-correction during the comprehension process, structure cues retrieval, and testing readiness estimation. Active monitoring of one's own cognitive activities is essential for effective learning (Baker & Brown, 1984). McNamara (2012) posits that the reader monitors comprehension by using strategies to determine the level of understanding. Before reading, learners can determine a purpose for reading, think about what they know about a topic, and make predictions. During reading, learners can check if their predictions and prior knowledge are consistent with the text. These strategies include generating questions while reading to assess understanding as well as taking notes where and when comprehension breaks down. The reader continually adjusts reading strategies to improve comprehension. After reading, learners can recall, summarize the text, or answer generated questions to assess comprehension. Comprehension monitoring is important at all stages and levels of reading.

In Gokhan (2014), 97 fifth grade students participated in a study to determine the effects of reading strategy use (SQ3R- Survey, Question Read Recite Review and DR-

TA- Direct Reading and Thinking Activity) on Turkish courses. The researcher concluded that using a reading strategy affected fifth grade readers positively.

Researchers believe that self-regulation may be affected by motivational beliefs (Chen, 2009). Motivation and motivational beliefs make up the third and final component of metacognition (Chen, 2009). Since reading is an activity that requires effort, children can choose to read or not to read. Choosing to read requires motivation (Baker & Wigfield, 1999). Baker & Wigfield (1999) found conclusively that children's reading motivation is multifaceted and that children are motivated to read for different reasons or purposes. Motivational beliefs may influence the reader's self-regulation and motivation while studying or searching for information. If the reader is focused on external factors, reading comprehension will likely suffer especially if the reader does not focus sufficiently on reading goals, features of the text, or details in the text (Westby, 2004).

According to Dobler & Eagleton (2015), monitoring and evaluating are two reading comprehension strategies that are considered "superstrategies" in online reading. Both of these cognitive strategies require a high level of metacognitive awareness. Strategic readers have the metacognitive ability to pause and reflect on what they read in order to be sure that they understand and remember what they are reading.

Online reading increases the need for monitoring because there is a need to manage information and comprehend text simultaneously (Afflerbach & Cho, 2009). Proficient readers know that online information can be hidden beneath several layers of links and that monitoring comprehension is more complex than checking whether the text makes sense (Dobler & Eagleton, 2015). Furthermore, it is necessary to have a sense of where

one is in the text and how to find the information that is required. If rereading is necessary, a reader must know how to find the text again and if this must be done by using the back button or the history list. During all of the forward and backward movement, it is possible that the reader may forget his question(s) or forget information that he has already read unless he is closely monitoring his strategy.

The strategy of evaluating relies on the complex integration of information gathered through the use of other comprehension strategies coupled with a reader's metacognitive ability to determine what is useful and truthful. Online reading places a great demand on critical evaluation. Readers must take an evaluative stance as they begin research and as they decide on a search tool and keywords and then move on to predicting which websites may be useful. As readers try to make sense of massive amounts of information, they must simultaneously identify important and useful information while trying to make sense of it all (Dobler & Eagleton, 2015).

The New Literacies of Online Research and Comprehension

The New Literacies of Online Research and Comprehension is another lens on which this study is based as it seeks to describe what happens when we read online. As such, there are at least four processes that occur while reading online: (a) defining important questions, (b) locating information, (c) critically evaluating information, and (d) synthesizing information (Leu, Kinzer, et al., 2013). According to the International Reading Association (2009), students need to be proficient in the new literacies of 21st century technologies in order to become fully literate. In Dalton & Proctor (2008), the authors convey that there is an urgent need to understand the characteristics of digital text, as digital text is nonlinear and multimodal, interactive, and unbounded in time and

space. The authors further explain that the user will read the text environment and then make choices about the types of support, content, media, and participation options.

In Hahnel, Goldhammer, Naumann, & Krohne (2016), a total sample of 888 students ages 15 and 16 participated in a study in which researchers investigated which individual skills contributed to students' digital reading performance and also whether navigational behavior of hypertexts contributed to digital reading performance. Results of this study support Coiro (2011), a professor of literacy practices, in that information and communication technologies (ICT) change the way text is presented and presents a challenge for readers regarding text selection. Coiro (2011) found that skilled readers stop to revisit their reading purpose while monitoring both their understanding of the content as well as the relevance of their chosen reading path. The researchers concluded that these specific behaviors placed additional demands on the participants in order to comprehend digital text accessed on a computer. These additional demands confirm that digital reading with hypertexts is not synonymous with linear reading and requires additional skills, such as navigating computer environments.

This study showed that well developed reading and ICT-related skills are important prerequisites for digital reading. Good linear readers with computer-related skills and effective strategies were able to determine the usefulness of web-based information and were able to locate, evaluate, and synthesize the information. Readers who struggle with linear text or lack basic computer skills will have difficulty in locating and relating relevant information from one text to another and will have difficulty in understanding hypertexts. These findings highlight the fact that in order for students to be proficient readers of digital text, it is necessary to support them in ICT skills and navigational

strategies.

With fifth graders being required to comprehend an increased amount of complex digital expository text, it is imperative to examine this specific area of these emerging new literacies. Unlike reading traditional print, where the interaction between the reader and the text is purely metaphorical, electronic texts permit a literal interaction between the reader and the text (McEneaney, 2011). In other words, digital texts continuously modify themselves based on user actions. For example, when reading an electronic textbook, readers may move between the text and embedded web links and multimedia, and this requires skillful thinking about the best ways to obtain information from a variety of sources.

Hypertext documents allow the reader to select a specific path through extensive networks of textual and multimedia information. Due to this literal interaction, the notion of reading being an "active process" takes on a new and more literal meaning when describing how one reads digital text. The engaged reader constantly makes choices about where to go and then takes physical action by selecting links or scrolling (Dobler & Eagleton, 2015).

The review of the literature will examine studies and research on practices and applications of reading strategies and text features in digital text together with components related to the research questions that have been outlined in Chapter One. Literature will also be reviewed to provide a foundation for interview questions that will be a part of this study.

Review of the Literature

Strategy Use

Keene & Zimmermann (2013) discussed advantages that they have observed for over 20 years that benefit readers when they use specific reading strategies to enhance their own comprehension. When readers use strategies, a common language is created. When students of all ages have a common language to discuss insights and ideas about text, they will be inclined to read with more depth and awareness. This language also enables them to express their ideas and build confidence in their ability to articulate their thoughts. Reading becomes an active process when they learn to awaken the "voice in their minds (p. 604)."

Once the "voice in their minds" is awakened, there is an ongoing, inner conversation between themselves and the text. According to Cervetti & Pearson (2012), strategies take on increasing importance with the PA Core emphasis on using a wide range of texts and multimedia sources and making and defending arguments that are extracted directly from the text. As a result, students need to be conscious and thoughtful about how they pull meaning and build background knowledge.

In 2007, Coiro & Dobler explored the nature of reading comprehension processes while reading on the Internet. The study took place in three different middle schools in the central and northeastern United States with 11 sixth grade students who had very high reading scores, a high GPA, and experience reading on the Internet. The 11 participants met individually with a researcher and completed two separate tasks that involved reading within multilayered websites or using the Yahooligans! search engine. The tasks focused on three aspects of comprehension deemed important from a new literacies

perspective (e.g., locating, evaluating, and synthesizing) in two online reading contexts commonly used for Internet research tasks in school classrooms.

Students were asked to think aloud during the reading task because verbal protocols offer valid and reliable insights regarding a reader's thinking and actions when conducted during a task (Pressley & Afflerbach, 1995). At the beginning of each task, students were told: "Tell me what you are thinking and what you are doing as you look for information on the Internet." Their answers provided access to how readers construct meaning and respond to a range of Internet texts. Students were asked to answer specific questions about their reading strategies in a follow-up interview. Immediately after the reading session, a post-reading interview was conducted to gain insight about the strategies each student used. Open-ended questions such as "What do you think good readers do when they read on the Internet?" and "What worked best for you today?" provided an opportunity to reflect on their use of a reading strategy. The qualitative analysis was done through four distinct phases. All involved reviewing data from think-aloud protocols, observations, and interviews to provide insights on online reading comprehension.

The findings of this study suggest that the processes and choices of skilled readers include the ability to draw upon their knowledge of the topic and printed expository text structures to guide their reading decisions. Also noted was that skilled Internet readers often used inferential reasoning strategies which come from their use of literal matching skills, structural cues, and context cues. In addition, skilled readers frequently used traditional self-regulation such as goal setting, predicting, monitoring, and evaluating online information for a particular reading purpose.

In addition to these conventional comprehension processes, the researchers found that skilled readers often used more complex dimensions of reading comprehension, drew from two additional sources of prior knowledge of expository website structures, and demonstrated forward inferential reasoning across multiple layers of Internet text. Readers were also observed engaging in a cognitive self-regulated reading process combined with new physical reading actions unique to web-based contexts.

In 2011, Coiro investigated the extent to which additional reading comprehension proficiencies may be required on the Internet beyond those that are measured by standardized tests. There were 109 seventh graders selected from a stratified random sample of diverse middle school students who participated in this study. Students' levels of offline reading comprehension were estimated using Connecticut's Reading Mastery Test.

Through the use of a questionnaire, the degree of students' prior knowledge of topic-specific and task-specific information was assessed. Students read a selection of text that was part of an Internet treasure hunt that included hyperlinks; images; animation; and audio, video or both on the Internet. Online reading comprehension was assessed using the Online Reading Comprehension Assessment (ORCA) - Scenarios I and II. Each instrument contained 20 open-ended items designed to measure aspects of reading comprehension while locating, critically evaluating, synthesizing, and communicating online information. Each student's online reading actions were recorded in real-time video using screen capture software. The researcher found that students with higher levels of online reading ability tended to have higher ORCA-Scenario II scores, regardless of the level of topic-specific knowledge, and students with lower levels of

online reading ability tended to have higher ORCA-Scenario II scores only if they demonstrated higher levels of topic-specific prior knowledge.

Findings from this study suggest that for this sample of seventh graders, higher levels of online reading comprehension skills may compensate for lower levels of prior knowledge when adolescents read on the Internet. These findings are noteworthy because there is a long line of research indicating that higher levels of prior knowledge facilitate comprehension in offline, or traditional, print text (Bransford & Johnson, 1972; Means & Voss, 1985). Researchers found from the screen capture videos that some students with below average reading test scores but who had advanced online reading skills were able to use the Internet to locate the background information they needed to complete their task. These findings support other research (Leu et al, 2007, Coiro & Dobler, 2007) that suggest that the processes skilled readers use to comprehend online text are both similar to and more complex than what previous research suggests is required to comprehend offline, or traditional, print text.

Chen (2009), a professor of special education, examined online reading strategies that elementary and middle school students actually use as the focus of her doctoral dissertation. The purpose of her study was to investigate how upper-elementary students with learning disabilities and their general education peers in the United States and Taiwan approach the comprehension process in expository literacy tasks involving hypertext environments. The study focused on four research questions:

1. What are their Internet strategies and behaviors?

2. How do they perceive and utilize the organizational structure provided in online environments?

3. How do they search for information using the Internet?

4. What reading strategies do they utilize before, during, and after an expository literacy task in a hypertext format?

Of the 119 fifth and sixth grade students who participated in this study, there were 52 general education students and six students with learning disabilities from four suburban schools in the Midwestern United States and 52 general education students and nine students with learning disabilities from two Taiwanese schools. While all 119 students participated in a group survey regarding Internet use, reading comprehension strategies in print and online environments, and strategies for online information searches, 25 students were randomly selected to receive individual literacy measures. Of the 25 students, 11 were general education students and 14 were students with learning disabilities. For these students, individual online reading comprehension activities were measured, and individual online search-engine tasks were implemented to investigate students' Internet reading comprehension abilities and search strategies.

Each of these students individually read and answered reading comprehension questions regarding two websites: one of the websites provided information about cheetahs and the other on Tasmanian devils. After answering the comprehension questions, the researcher interviewed each student regarding beliefs about the usability and accessibility of the content of the two websites. These questions examined whether organized hypertexts with labels and navigation tabs were easier for students to read with regard to locating information and comprehending the content than less organized hypertexts, or vice versa.

A structured, metacognitive interview was administered to each student individually to explore the student's online reading strategy knowledge and thinking processes as he read texts on the Internet. The interviews revealed that students found it to be more time efficient to find answers on the website with clear tabs because they could quickly understand the context from the tabs shown on the left side of the website. When students read unmarked hypertexts and they needed to click to move from one passage to another, comprehension became more difficult and they could not take advantage of hypertext structure to remember more chunks of organized ideas. With regard to online strategy use, the interviews revealed that the fifth and sixth grade students had more knowledge and strategies in the area of online post-reading strategies as compared to pre-reading strategies and strategies utilized during reading.

Horney, Anderson-Inman, Terrazas-Arellanes, Schulte & Mundorf (2009) investigated the effects of text notes and voice notes on the comprehension of science texts by fifth grade students in a large school district in Florida. The study was conducted to determine if digital note taking was an effective way to enhance reading comprehension.

The study was conducted in 10 fifth grade classrooms with 10 teachers and 211 students. Of the 211 students, 18 received special education services. Individual students in each class were randomly assigned to two groups (Groups A and B). Students in each class were given the pretest for the science text "Cells" and were then asked to read the text and take notes. Students in Group A inserted their notes as voice notes, while students in Group B inserted their notes as text notes typing into the text annotation window. A post-test was administered when all students completed their reading and

note taking, and then this process was repeated with another science text "Heredity," but this time Group A inserted text notes and Group B inserted voice notes.

After analyzing the data from pretest and post-test scores and copies of either text notes or voice notes, the researchers found that scores on the post-tests in both studies revealed that the students knew more about the science topics covered in the books after reading and taking digital notes than they did before. In addition, while these gains were statistically significant for general education students, they were not for the students with disabilities. For one of the books used in the study, a statistically significant difference in gain scores was found for students who produced voice notes as opposed to those who produced text notes. The preference for voice notes was also noted in significantly improved scores on short answer tests for students with disabilities, although for only one of the books. The researchers concluded that these findings suggest that recording voice notes is at least as effective as typing text notes, and possibly more effective for some students in some situations (p. 45-61).

Proficient Readers Versus Non-Proficient Readers and the Use of Strategies

In Anastasiou & Griva (2009), 18 poor readers and 18 good readers participated in a study designed to explore the primary school students' awareness of reading strategies and the relation between reading strategy awareness and reading comprehension. The participants were 11and 12 years old and were selected from 201 sixth grade students in five primary schools in Northern Greece. The participants were selected according to their reading ability based on a group administered reading test as well as by the verification of their reading ability by teachers' judgments. Each participant was asked to read a narrative and an expository text. After reading each text,

the participants answered four open-ended comprehension questions. After reading and responding to questions, each participant was asked to report on his thoughts while completing the reading task. The interviews consisted of 10 open-ended questions used to assess awareness of the reading tasks, the difficulties encountered in the reading process, reading strategy use, and perceptions on abilities and weaknesses. Poor readers were aware of less metacognitive strategies since they reported that they used metacognitive strategies less frequently than the good readers did. Good readers were more aware that the reading tasks could require different approaches. Clear and significant differences were found to exist between the two groups in relation to monitoring comprehension. Good readers used text-processing skills while poor readers tended to use word-level cues to focus on decoding the text.

Findings from this study support previous studies (Grabe &Stoller, 2002; Pressley, 2002) that indicate that good readers are aware of their reading purpose and use strategies for processing texts. Furthermore, these results support previous findings (Paris, Lipson & Wixson, 1983) that there is a difference in metacognitive strategy use between readers who possess varying reading levels in terms of frequency and use.

While this study did not involve the reading of digital expository text, it serves to inform the current study as to the differences in reading strategy use between proficient and non-proficient readers. This study also provided information regarding the interview questions that will be used in the current study.

Another study, Pookcharoen (2009), sought to investigate what strategies Thai EFL (English as a Foreign Language) university students use for academic purposes and to discover how they use the strategies in actual reading tasks. The study also explores

what similarities and differences exist between the actual use of strategies among proficient and less proficient readers, which is of interest to the researcher and will serve to inform the current study. The participants included 111 Thai EFL university students enrolled in a course called "Reading for Information" at a large university located in a suburban area near Bangkok. Students whose grades were an A, B+, or B were categorized as proficient readers, and students with grades of C+, C, D+ belonged to the less proficient group. The selected students were asked to take the TOEFL (Test of English as a Foreign Language) reading test to determine their actual reading proficiency. Based on their TOEFL reading test scores, two groups of four students were categorized as a proficient reader group and a less proficient reader group.

Several instruments and approaches were used to collect data: the Online Survey of Reading Strategies (OSORS), TOEFL reading proficiency test scores, Internet use questionnaire, pre- and post-reading interviews, observations through think-aloud sessions, and self-reporting of online reading strategies.

Evidence from the OSORS data showed that the proficient students had higher usage of metacognitive online reading strategies than the less proficient students. The qualitative data showed that the proficient students were able to monitor their cognitive processes. For example, the students were aware of which strategies to use and how to regulate the use of such strategies while reading. The less proficient students struggled with vocabulary, reading skills, and using strategies, and they also tended to use simple strategies such as using reference materials and skipping difficult words and sections. Although the population of this study differs from that of the current study, Pookcharoen (2009) serves to inform the current study as to how the reading strategies of proficient

readers compare to those of non- proficient readers when reading digital expository text.

Chapter Summary

There is research that examines how adolescents and adults approach digital text to problem solve and research and how reading digital text affects comprehension. However, there is a need for more current research with regard to how elementary students approach and make meaning of digital expository text in an online environment. This study builds upon past research of strategy use in traditional print and will provide current research to fill the gap in the literature with respect to how proficient and non-proficient elementary readers, specifically fifth graders, make meaning of digital expository text in an online environment.

This literature review sought to examine studies and research on practices and applications of reading strategies and text features in digital text.

CHAPTER 3

METHODOLOGY

The primary purpose of this research study was to investigate how elementary students make meaning of digital expository text through the use of strategies with regard to overall retention of content material in an online environment. This information was collected using a series of interviews with fifth grade elementary school students.

Research Problem

This study sought to reveal how elementary students comprehend digital expository text in an online environment. Much research has been done on the subject of reading comprehension. However, there is a need for more research on how elementary students approach and comprehend digital expository text in an online environment. In addition, there is a gap in the literature with respect to reading comprehension strategies between students who achieve high scores and students who achieve low scores in reading comprehension. With the implementation of the PA Core, students need the skills and strategies to understand expository text as the amount of required nonfiction text has increased together with text complexity. The PA Core requires students to interact with both print and digital text, to be able to comprehend the reading material, to problem solve, and to be able to cite examples in the text to support an answer.

Research Questions

1. What strategies do fifth grade students use to make meaning of digital expository text in an online environment?
2. What do proficient and non-proficient fifth grade readers do when the reading material is difficult to comprehend?

3. Are there specific features of digital text, such as hyperlinks, that interfere or help to improve the proficient and non-proficient fifth grade reader's comprehension?

Research Design

This research study is a qualitative study that used an interview protocol to determine the differences in reading comprehension strategy use between proficient and non-proficient readers who are reading excerpts of expository text on a computer.

Research Setting

This study took place in one of four area elementary schools in the Northampton Area School District in northeastern Pennsylvania. There are a total of six schools in the district that serve approximately 5,500 students from kindergarten through 12th grade. Less than one percent of students demonstrate limited English proficiency. The ethnic distribution of the student body of this elementary school is as follows: 93% White, 4% Hispanic, 1% Black or African American, 1% multi-racial, and 1% Asian. Twenty-one percent of the students are economically disadvantaged. The percentage of students who receive special education services is 12%. The expenditure per pupil in 2013-2014 was $14,184, as compared to the state average of $16,235 per student (The Commonwealth Foundation, 2013).

In 2014-2015, the PSSA (Pennsylvania System of School Assessment) test was aligned to the more rigorous PA Core Standards for the first time. With regard to performance on the PSSA, 70% of all fifth grade students scored at proficient or advanced levels of performance in reading, while 30% of the students scored at basic or below basic levels of performance in reading (Pennsylvania Department of Education, 2016).

Selection of Participants

The participants invited to participate in this qualitative research study consisted of 28 fifth grade students who attend Lehigh Elementary School in the Northampton Area School District. The researcher sent consents to the parents of 62 fifth grade students (the entire fifth grade except for those students with Individualized Education Plans or Gifted Individualized Education Plans). Twenty-eight of these students volunteered to participate in this research study by returning informed consents.

Research Study Phases

This research study consisted of two separate phases: the pilot study and the study. Participants in both phases of this study were selected in the same manner, which is described below.

Phase 1- Pilot Study

The pilot study took place at a rural elementary school in northeastern Pennsylvania. Interviews were used to gather data from fifth grade students for this research. The intent of the pilot study was to identify ambiguities, clarify the wording of interview questions, and permit early detection of necessary additions or omissions (Noor, 2008).

Twenty-five consents were sent to the parents of students in a fifth grade reading class. Ten of these students returned the informed consents and volunteered to participate in the pilot study. It was the intent to randomly select participants, however due to the low number of returned consents, random selection was not possible.

Pilot study-informed consents. Prior to beginning the pilot study, the researcher provided the superintendent of the school district as well as the elementary school

principal with informed consent forms (Appendices A-C). After site approval and IRB approval, parents of selected students were contacted via letter along with the informed consent forms via U.S. mail (Appendix D). In the letter to parents, the researcher explained the purpose of the study and the possible impact that the findings of the study could have on future students, and she indicated that participation in this pilot study is voluntary.

Pilot study-permissions and authorizations. The researcher received IRB approval from Indiana University of Pennsylvania. The researcher also secured authorization from the school district superintendent and building principal to conduct research within the school district. Once approved, the researcher provided a copy of the Indiana University of Pennsylvania's IRB-approved, stamped consent documents to the school district superintendent and elementary school principal.

Pilot study-data collection. The researcher met with the participants at the elementary school during their reading class. The researcher introduced herself and explained that she was a high school teacher who was interested in how fifth graders make meaning of text on a computer. The students read a selection of expository text on a desktop computer that was located in a small conference room. As each student finished reading the selected text, they completed a multiple-choice online comprehension assessment. The interview consisted of various questions that were developed from a review of the literature (Anastasiou & Griva, 2009) and related back to the researcher's research questions. Each interview lasted approximately 15 to 20 minutes, and was audio recorded. Notes were also taken to document observed behaviors.

The pilot uncovered potential issues that proved to be helpful with the study. During the pilot study, the participants read the selected text on a desktop computer and then moved to a different table to be interviewed. When the students had some difficulty describing certain aspects of the text, it became evident that the text should remain in front of the participant so that the participant could easily refer back to the text while being interviewed. One of the participants indicated during the interview that she did not realize that the digital tools were located at the bottom of the screen. From that point forward, it was clear that the digital tools needed to be pointed out to each participant. In addition, the researcher indicated to each participant that it was permissible to explore and click on whatever was necessary in order to best comprehend.

The pilot study also uncovered the need to clarify one of the interview questions. Several of the participants did not understand the word "process", so the researcher explained that the process one uses to read is like a "plan of attack", or how one approaches text in order to best comprehend. During the interview process, it became clear that follow-up questions were extremely important. These follow-up questions helped the fifth graders to elaborate and clarify their responses.

Phase 2- Study

Upon completion of the pilot study, the researcher and principal identified 62 fifth graders to be invited to participate in the study. The entire fifth grade was selected except for those who had Individualized Education Plans or Gifted Individualized Education Plans. As in the pilot study, the researcher explained the purpose of the study and the possible impact that the findings could have on future students, and she indicated that participation was voluntary.

Study-informed consents. Prior to beginning the study, the principal investigator provided the superintendent of the school district as well as the elementary school principal with informed consent forms (Appendices E-H). Once approved, parents of selected students were contacted via letter, and they also received the informed consent forms via U.S. Mail (Appendix I). In the letter, the researcher explained the purpose of the study and the possible impact that the findings could have on future students, and she indicated that participation in the study was voluntary. Out of the 62 informed consents that were sent to parents, 28 were returned and these were the students who volunteered to participate in the study.

Study- data collection. The data for this study was collected using an interview protocol and notes were taken to record any behaviors that might not be uncovered during the interviews.

Student interviews. Prior to conducting the interviews, the researcher met with the student participants in a classroom and was introduced by a fifth grade teacher. During this meeting, the study was explained and the participants had opportunities to ask questions. The interviews were held in the library conference room. Prior to beginning each session, the researcher conversed with the participant in order to make them more comfortable and to make the process less intimidating. The researcher directed each participant to the website address where the expository text was found on a Google Chromebook (laptop). Each student read the selection of expository text on the laptop. The selection of expository text was on a fifth grade reading level. It was entitled "Ready for Everest" and was found in Scholastic News, a digital magazine published by Scholastic, Inc. (Scholastic). Scholastic uses the F&P Text Level Gradient, a guided

reading system developed by Fountas & Pinnell to level their texts (Scholastic, 2016). Fountas & Pinnell determine text difficulty by examining the following: genre, sentence complexity, vocabulary, complexity of letter-sound patterns, text structure, content, themes and ideas, language and literary features, and illustrations (Fountas & Pinnell Leveled Book Site, 2016). On the magazine's webpage there is a button to click to choose "on level" or "lower." For this study, the participants read the "lower" level. This level of text consists of 659 words. According to the Flesch-Kincaid readability test, the "lower" text is on a sixth grade reading level, while according to the Fry Readability Formula, the text level is grade seven. After verification on The Lexile Framework for Reading (2016), the Lexile score level was found to be 810. This text was selected for this study based on Scholastic's level and the Lexile score. According to The Lexile Framework for Reading (2016), Lexile ranges have been realigned to match PA Core's text complexity grade bands, the range being from 770-980 for grades four and five.

The researcher pointed out to the participants several digital tools available in this digital magazine such as a zoom button, text-to-speech option, highlighter, drawing tool, digital sticky notes, and a video clip. There are also two hyperlinks to assist with new vocabulary. In addition, the researcher indicated to the participants that they should feel free to explore and click on whatever was needed in order to best understand the text. At the end of the passage, there were four comprehension questions that each student answered. These multiple-choice questions were designed by Scholastic to assess determining importance, finding supporting details, making inferences and recall. The computer automatically graded these questions as the participant selected an answer. If a question was answered incorrectly, a red "x" appeared on the screen and a buzzer

sounded. As the participants appeared to be nervous when they selected an incorrect response, the researcher reassured the participants that although the questions were important, the goal of the interview was to uncover how they made sense of the text. A face-to-face interview was conducted with each student after they finished reading the text and answering comprehension questions. During the interview session, the Google Chromebook and the text remained in front of the participant so that the text could be referred to if necessary. A review of the literature provided the protocol for conducting the interviews (Anastasiou & Griva, 2009) and served to provide the researcher with various constructs from which to create interview questions (Appendix J). The interview questions were revised and follow-up questions were utilized as necessary due to potential issues that were uncovered during the pilot study. The interview questions corresponded to the research questions and were based on the theories and research studies surrounding the topic of reading strategy use. The interview responses were transcribed from the audiotape and then placed into thematic categories so that the researcher was able to determine any patterns across the respondents' answers. The interview questions were categorized according to the research question to which they related:

Research Question 1: What strategies do fifth grade students use in order to make meaning of digital expository text in an online environment?

Interview questions:

Describe what helps you to understand the material that you are reading.

When you read material on the computer, describe the process you use to be able to understand what you were reading.

Research Question 2: What do proficient and non-proficient fifth grade readers do when the reading material is difficult to comprehend?

Interview question:

Tell me what you do when you read something that is hard to understand.

Research Question 3**:** Are there specific features of digital texts, such as hyperlinks, that interfere or help to improve the proficient and non-proficient fifth grade reader's comprehension?

Interview questions:

Is it easier to comprehend using a book or a computer, or are they both about the same?

Was there anything that you saw in the text that helped you better understand what you were reading?

After the interviews and comprehension questions were complete, the researcher divided the participants into two groups for analysis purposes. Students who scored Advanced or Proficient on the grade four PSSA were placed in the Proficient group. There were a total of 18 participants (13 female, 5 male) in the Proficient group. The participants who scored Basic on the grade four PSSA were placed in the Non-Proficient group. There were ten participants in the Non-Proficient group (4 female, 6 male).

Coding of the Data

All interview responses were coded and placed into thematic categories. According to Gay, Mills & Airasian (2009), coding is the process of categorically marking or referencing units of text with codes and labels as a way to indicate pattern and meaning. The researcher began with a number of codes that related back to the research

and interview questions, such as re-reading, using digital sticky notes, vocabulary trouble, and using the highlighting tool. After coding was complete, the researcher examined any patterns that existed across the data and grouped them into themes. From these themes, the researcher described in detail what strategies students used to comprehend the text and how comprehension was affected. These themes are further discussed in Chapter Four.

Limitations

This qualitative research study included a sampling of a specific population of students in an area elementary school, and therefore includes findings that are specific to this population and may not be representative of a different school population. Other limitations within the study may include the openness and honesty of the sampled students at the participating elementary school.

Chapter Summary

This chapter presented the research methods that were selected and utilized throughout the entire study. It also presented an overview of the study, the research problems and questions, the research design, the research setting, the selection of the participants, and the method of data collection. The chapter concluded with possible limitations of the research study. Chapter Four follows this section and will provide a deep analysis of the data, discussion of the interviews, as well as a description of emerging themes.

CHAPTER 4

RESULTS

The purpose of this study was to investigate how fifth graders make meaning of digital expository text with regard to overall retention of content material and to examine the strategies used by proficient and non-proficient readers. The interview questions evolved after a review of the literature surrounding the use of reading strategies by proficient and non-proficient readers and the impact that these strategies have on comprehension.

The digital expository text that the student participants read is entitled "Ready for Everest" and is accessible on the Scholastic (2016) website. The story is about a 12 year old boy who climbs Mount Everest. The researcher explained to the participants individually that the purpose of the interviews "was to find out how fifth graders make meaning of text when they read on a computer." The researcher also directed each participant to the selected text and to the comprehension questions that were to be answered. The researcher indicated to each participant that (s)he should "use or click on whatever was necessary to best understand what (s)he was reading." Tools available in the text include pictures, a map, hyperlinks, magnifying glass, text-to-speech (also a separate button labeled "Listen" which has the same function as the text-to-speech button), highlighter, drawing tool, and a three-minute video with content on climbing Mount Everest.

Study Findings and Their Link to Existing Research

This study is grounded in existing research surrounding the topic of metacognition and the new literacies of online research and comprehension, in relation to

the use of reading strategies while reading on a computer. Interview responses given by student participants throughout this study support much of what has been found in previous research regarding these topics (Anastasiou & Griva, 2009), (Pookcharoen,2009).

Prior research indicates that active monitoring of one's own cognitive activities is imperative for effective learning (Baker & Brown, 1984). Comprehension monitoring is important at all stages and levels of reading, as the reader continually adjusts reading strategies to improve comprehension. Readers with metacognitive knowledge can monitor comprehension by using strategies before, during, and after reading to determine the level of understanding (McNamara, 2012).

Throughout this chapter, the findings of this study are presented and the analysis of data is provided. Initially, a pilot study was done which consisted of interview sessions with nine fifth grade students (seven female, two male). During the pilot study, the researcher assumed the role of an interviewer and data analyst. This pilot study served to establish validity of the interview questions by assessing student feedback. Interview questions were developed using information gathered from a review of the literature. During the pilot study, the importance of follow-up questions became evident, as did the need for explaining the word "process" in an interview question. For example, when the participants were asked to describe the process used to be able to understand what is being read, three participants asked what the word "process" meant. The researcher explained that "process" meant how the students could describe their "plan of attack" when reading the online text. Follow up questions or statements such as "Tell me more," "What do you mean by that?" and "Can you show me what you mean?" were

important in order to try to elicit as much detail from the participants as possible. Observation notes were compiled in order to document activities during reading that may not have otherwise been uncovered during the interview sessions. During the pilot study, the participant read the text on the desktop computer and then moved to the table where the researcher was sitting in order to be interviewed. Due to the need for follow-up questions and the explanation of one of the interview questions that the pilot study uncovered, the protocol for the study changed slightly.

The study consisted of interview sessions with 28 fifth graders (11 males, 17 females). As in the pilot study, the researcher assumed the role of interviewer and data analyst. During the study, the interviews were held in the library conference room. The participant and the researcher sat at one long table while the participant read the text on a laptop computer. Unlike the pilot study, the participants were able to refer back to the text that they had just read on the laptop and point to the pictures or map that they used when responding to the interview questions. It is worth noting the possible implications of the participants viewing the text while responding to the interview questions. It is possible that the participants in the study were able to remember how they read the text more clearly than the participants in the pilot study did since the text was in front of them, or perhaps that while viewing the text during the interview session, the participants thought of a strategy or tool that they felt they should have used but did not.

According to Creswell (2007), triangulation of data is a method used in qualitative research where researchers use multiple and different sources and methods to provide corroborating evidence to increase validity of a study. After reading the transcription notes and listening to the audio-recorded interviews multiple times, the

participant responses to interview questions were analyzed and coded according to the research question to which it was linked. The data were triangulated from all data sources (the interviews, observation notes, and the results of the comprehension quiz that followed the selected passage).

Descriptive Characteristics of the Student Participants

The criteria for selecting students to participate in the study were based on the following characteristics:

1. students in the fifth grade in one of four elementary schools in Northampton Area School District, in northeastern Pennsylvania;

2. must have taken the Pennsylvania System of School Assessment (PSSA) in the area of reading during their fourth year and scored Advanced, Proficient, or Basic on the assessment; and

3. must not have an Individualized Educational Plan or a Gifted Individualized Educational Plan.

Using an electronic student information system (Sapphire), the researcher and administration identified students who fit the aforementioned criteria. From that population, 62 students were selected and parent consent forms were sent home. Out of the 62 students selected, 28 students returned parent consents and these students volunteered to participate in the study. The participants were identified using fictitious names that begin with the letter "A" for advanced, "P" for proficient, and "B" for basic, which corresponded, to their PSSA score. The name assigned to each of the participants was used to identify that individual when discussing the research findings for the remainder of the study (Table 1).

Table 1

Student Participants

Student Participants	Gender	PSSA Level (Reading)
Abby	F	A
Andrea	F	A
Anna	F	A
Ava	F	A
Pablo	M	P
Paige	F	P
Palmer	M	P
Pamela	F	P
Parker	M	P
Patrick	M	P
Patricia	F	P
Paula	F	P
Pauline	F	P
Payton	F	P
Peggy	F	P
Peter	M	P
Polly	F	P
Priscilla	F	P
Belinda	F	B
Ben	M	B
Bert	M	B
Betty	F	B
Bill	M	B
Bob	M	B
Brandon	M	B
Brenda	F	B
Brian	M	B
Brittany	F	B

Note. PSSA Level--Advanced (A), Proficient (P), or Basic (B) on the grade four PSSA for reading.

Analysis of Student Interview Questions

Following is a summary of the participants' responses to each of the three research questions as they relate to how fifth graders make meaning of digital expository text on a computer. According to the State Board of Education (2015), "a student performing at the advanced level demonstrates a *thorough* comprehension of literary and informational texts by referring explicitly to the text to draw inferences, summarize, and explain. A student performing at the proficient level demonstrates comprehension of literary and informational texts by referring explicitly to the text to draw inferences, summarize and explain. Finally, the student performing at the basic level demonstrates limited comprehension of literary and informational texts and insufficiently describes, explains, compares, contrasts, and determines literary and informational elements." In order to more clearly depict the participants in the following narrative sections, participants who scored Advanced on the PSSA were given fictitious names that begin with the letter "A," participants who scored Proficient were given fictitious names beginning with the letter "P," and participants who scored Basic were given fictitious names that begin with the letter "B." For comparison purposes in the tables, Advanced and Proficient students have been grouped together and are considered Proficient.

Student Interview Summary of Research Question 1

Students were asked to reflect on and describe the strategies that they used when reading expository digital text on a computer. According to Coiro (2011), skilled readers stop to revisit their reading purpose while monitoring their understanding of content and evaluating the relevance of their chosen reading path.

Research question 1.

What strategies do fifth grade students use in order to make meaning of digital expository text in an online environment?

Interview questions related to research question 1 (1a and 1b).

(1a.) Describe what helps you to understand the material that you are reading.

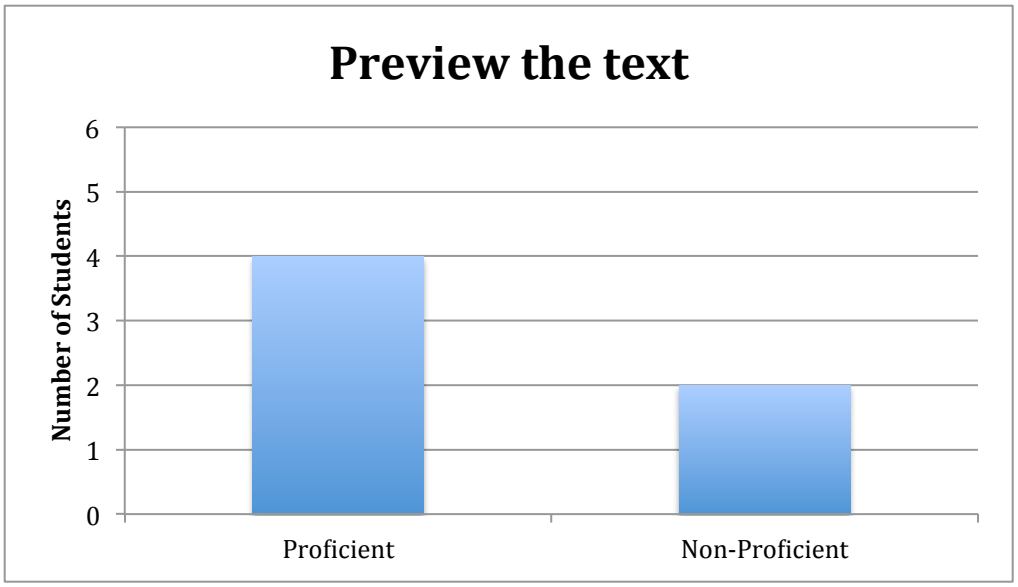

Figure 1. Preview the text.

Six participants (Abby, Pamela, Payton, Palmer, Betty, and Ben) said that it helps them to better understand if they read the title and subheadings (previewing the text) (Figure 1). Of the proficient participants, four out of 18 or 22% previewed the text, and two out of 10, or 20% of the non-proficient participants previewed the text. Pamela explained that the title and headings "tell me what the paragraph will be about," while Betty said that the passage "would be confusing without the headings."

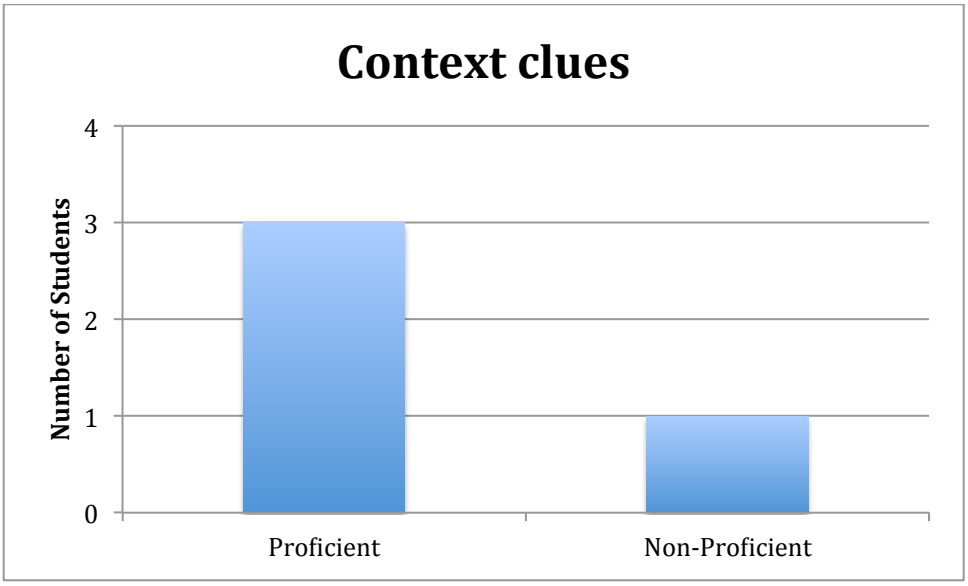

Figure 2. Context clues

Four participants (Abby, Anna, Patricia, and Betty) indicated that they use context clues to better understand when they read (Figure 2). Of the proficient participants, three out of 18 or 17% said that they used context clues, and one out of 10 or 10% of the non-proficient participants used context clues. Each of these participants further explained that they either look at the words before or after the word that they do not understand to help them figure out the meaning. They said that sometimes it is necessary to read a few sentences before the word and a few sentences after the word in order for them to understand. Patricia and Betty both indicated that their teacher always tells them to look at the words before or after a word or section that is hard to understand. Overall, the students were well versed in the names of the reading strategies that they use, and how to use them.

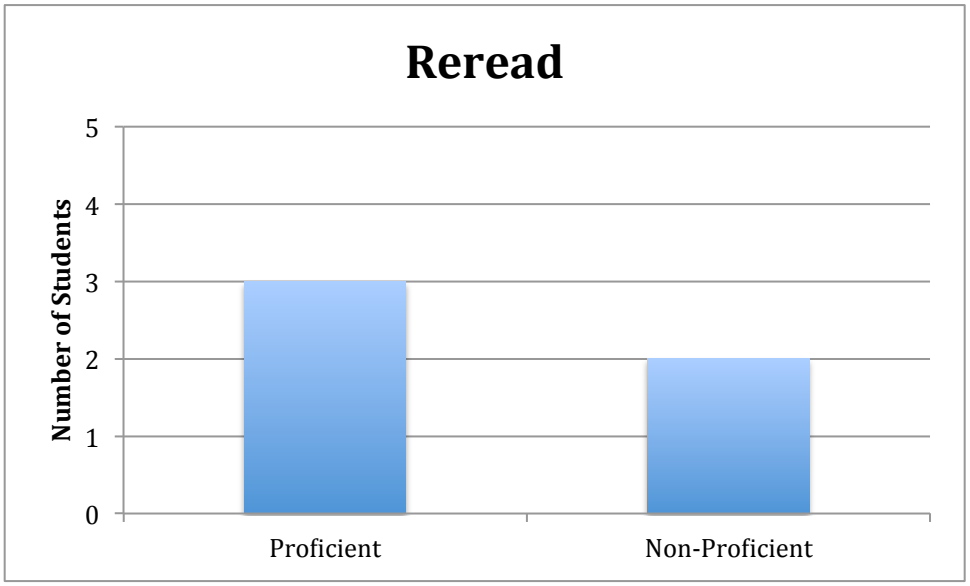

Figure 3. Reread.

Five participants (Priscilla, Palmer, Pauline, Bill and Betty) indicated that rereading a portion of the text helps them to better understand what they are reading (Figure 3). Of the proficient participants, three out of 18 or 17% stated that they reread, while two out of 10 or 20% of the non-proficient participants reread (Table 4).

Anna offered that she likes to use her background knowledge to help her read. She said that she has background knowledge of Mount Everest because she has learned about it a few times in school. She knew before she read that Mount Everest was very high and that it is very dangerous to climb. Paige said that she tries to keep thinking about what she is reading to make sure that she understands.

Eight participants (Anna, Pablo, Polly, Patrick, Bill, Brian, Brandon, and Ben) said that when there are comprehension questions to be answered, they read those questions first before they start to read the passage. Of the proficient participants, four out of 18 or 22% preview the questions and four out of 10 or 40% of the non-proficient

participants preview the questions. Seven participants (Andrea, Abby, Anna, Polly, Pablo, Bill and Brian) indicated that they look back in the passage when answering the questions. Of the proficient participants, five out of 18 or 17% looked back and two out of 10 or 20% of the non-proficient participants looked back. Bill was unsure whether he was allowed to look back, so he asked permission first. Patricia and Betty did not indicate in their responses that they looked back in the passage, but the researcher noted this behavior in the notes. Brian said that he "tries to match a sentence from the passage with a question to find the answer." Although Brian was the only participant who reported this behavior, the researcher observed Bert and Betty exhibit the same behavior.

Ten participants (Ava, Peter, Paula, Peggy, Parker, Palmer, Bert, Bob, Brenda and Belinda) were not able to identify or clearly describe what helps them to understand text when they read on a computer. Of the proficient participants, six out of 18 or 33% could not identify anything that helped them read on a computer and 4 out of 10 or 40% of the non-proficient participants could not identify anything that helped them.

(1b.) When you read material on a computer, describe the process you use to be able to understand what you were reading.

When asked this interview question, several student participants asked that the word "process" be clarified. The researcher explained that in this context, describing their "process" meant to describe their plan of attack to best understand the passage that they are about to read.

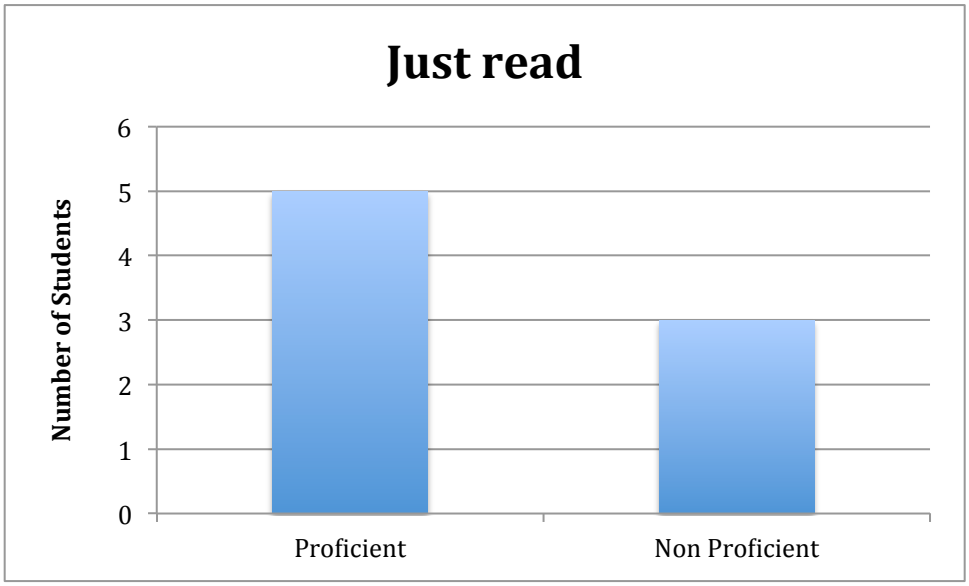

Figure 4. Just read.

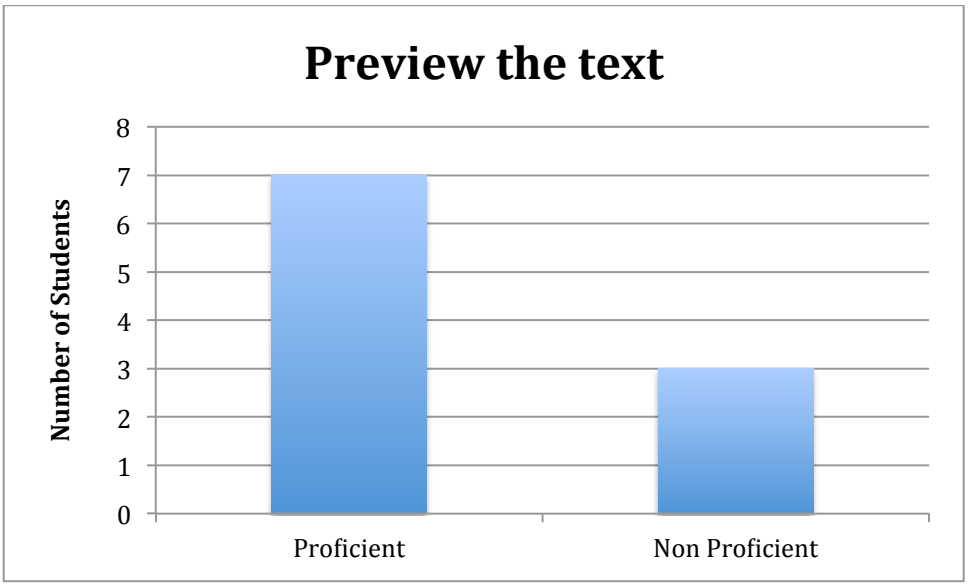

Figure 5. Preview the text.

Eight participants (Andrea, Peter, Pamela, Paige, Pablo, Bob, Bert, Belinda) responded that they "just start to read" (Figure 4). Of these eight, five out of 18 or 28% were proficient participants and three out of 10 or 30% were non-proficient. As a follow

up question, the researcher asked, “where on the page do you begin to read?” These eight participants stated that they start reading at the top and finish at the bottom (just read). Conversely, 10 participants (Anna, Priscilla, Patricia, Payton, Peggy, Pauline, Palmer, Ben, Brian, and Brittany) stated that before they read, they look at pictures and captions (if there are any), the title, and the subheadings (preview the text) (Figure 5). Of these 10 participants, seven out of 18 or 39% were proficient participants and three out of 10 or 30% were non-proficient.

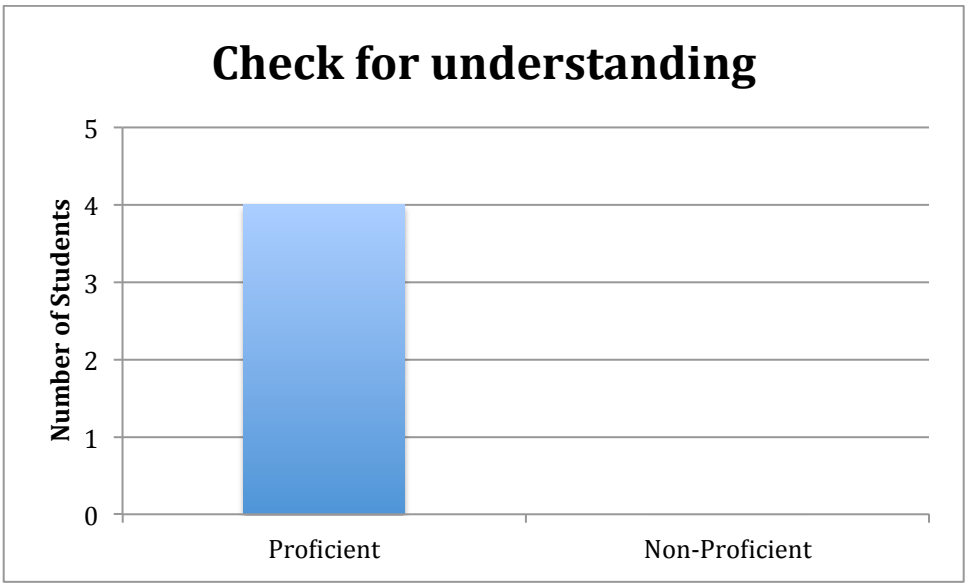

Figure 6. Check for understanding.

Paula and Parker indicated that they use the cursor to help them “keep their place” when they read on the computer. Paula said, “I try to think about what the story will be about.” Four additional students (Ava, Anna, Parker, and Brenda) elaborated on their process (Figure 6). Of these five participants, four out of 18 or 22% were proficient and one out of 10 or 10% was non-proficient. They each indicated that they try to think about what is happening in the story. Brenda mentioned that she tries to picture what is happening in the story, and that she found “important facts” and highlighted them. Ava

explained, “I think about what is important and I try to group similar ideas together in my head.” Anna said that she kept thinking about Tyler’s age and the fact that he was so young to climb Mount Everest. Paula echoed Anna’s thoughts when she made a connection about Tyler’s age and wondered if she would be able to make the climb herself, since she and Tyler are the same age. Parker explained that besides thinking of the main idea, he was testing out the digital tools to see how they work. The researcher grouped these strategies together and labeled them as “Check for Understanding.”

From responses to interview questions 1a and 1b, six general strategies emerged: preview the text, check for understanding, reread, context clues, background knowledge, and making connections.

Student Interview Summary of Research Question 2

This portion of the interview sought to uncover what fifth grade readers do when they read a passage that is difficult to understand.

Research question 2.

What do proficient and non-proficient fifth grade readers do when the reading material is difficult to understand?

Interview question related to research question 2.

2. Tell me what you do when you read something that is hard to understand.

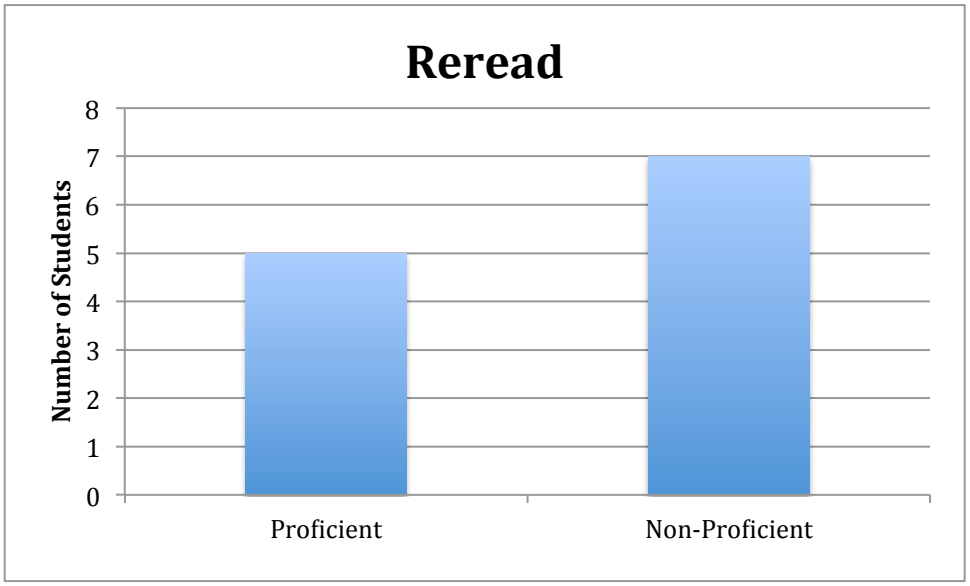

Figure 7. Reread.

The strategies of rereading and the use of context clues emerged again from the responses to interview question 2 as well as from interview questions 1a and 1b. Research question two was similar to research question one, but it was designed to be more specific, in order to uncover what the reader does when comprehension breaks down. Twelve participants (Andrea, Paige, Pauline, Pablo, Parker, Bob, Betty, Brenda, Brandon, Belinda, Brian, and Brittany) said that they reread the text when they have trouble comprehending (Figure 7). Of these 12, five out of 18 or 28% were proficient, and seven out of 10 or 70% were non-proficient participants.

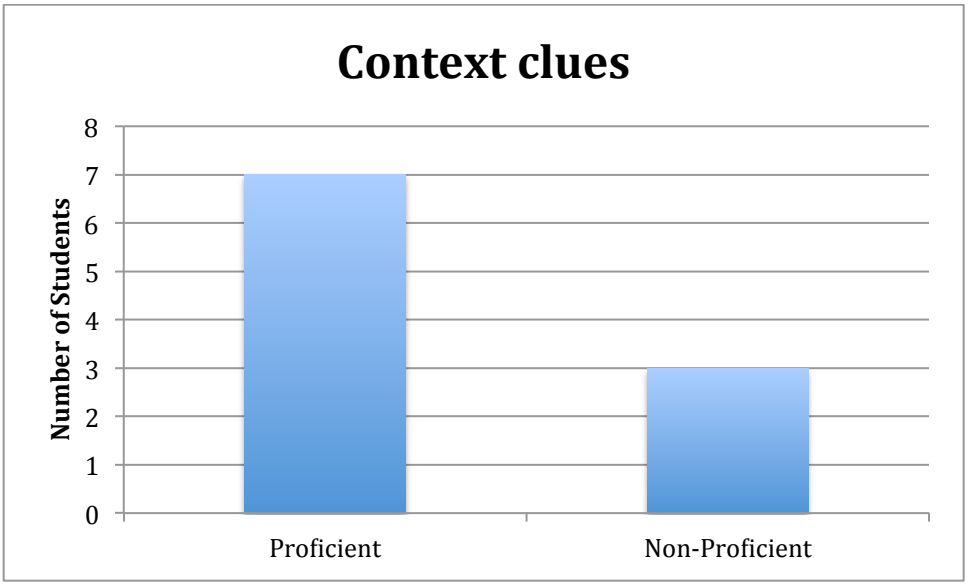

Figure 8. Context clues.

Ten participants (Polly, Pamela, Patricia, Payton, Peggy, Pablo, Palmer, Bill, Betty, and Belinda) indicated that they use context clues to figure out the meaning of a word or sentence (Figure 8). Of these 10, seven out of 18 or 39% were proficient and three out of 10 or 30% were non-proficient. Additionally, Bert and Ben said that when they find something difficult to understand, they continue to read until they think that they have to go back in order to figure it out. Six participants (Peter, Priscilla, Paula, Bill, Bert, and Brandon) stated that they ask for help when they cannot understand what they are reading.

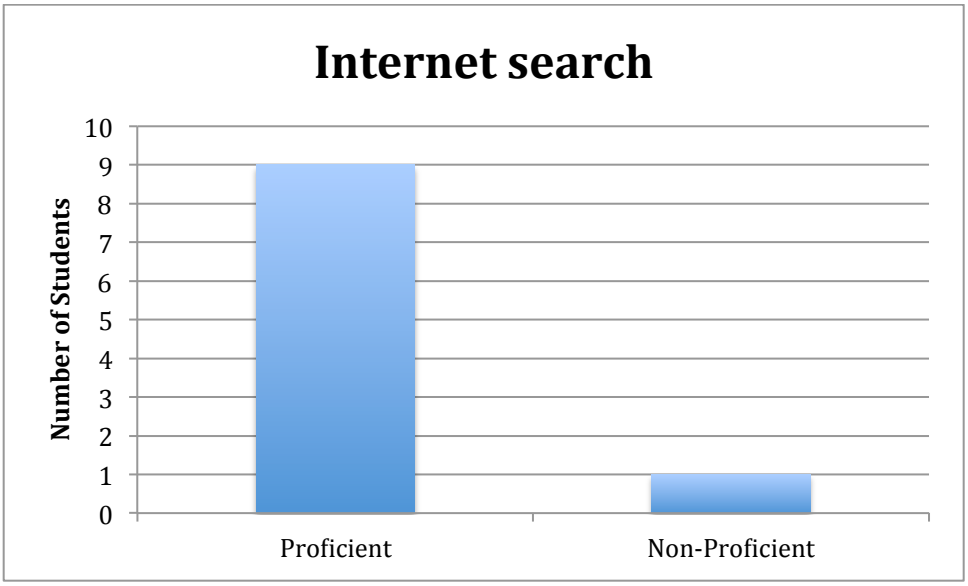

Figure 9. Internet search.

Ten participants (Abby, Anna, Priscilla, Patricia, Payton, Peggy, Pablo, Patrick, Palmer, and Ben) said that they would "search it up" on google.com or dictionary.com depending on what it was that they were not understanding (Figure 9). Of these 10 participants, nine out of 18 or 50% were proficient, and one out of 10 or 10% was non-proficient. Parker said that he tries to use close reading strategies. He explained that if something is difficult to understand, he tries to find the main idea of each paragraph to help him.

Student Interview Summary of Research Question 3

This portion of the interview sought to explore what features or tools of digital text fifth grade readers use to improve comprehension or if these features or tools interfered with comprehension.

Research question 3.

Are there specific features of digital texts, such as hyperlinks, that interfere or help to improve the proficient and non-proficient fifth grade reader's comprehension?

Interview questions related to research question 3.

3a. Is it easier to comprehend using a book or a computer, or are they both about the same?

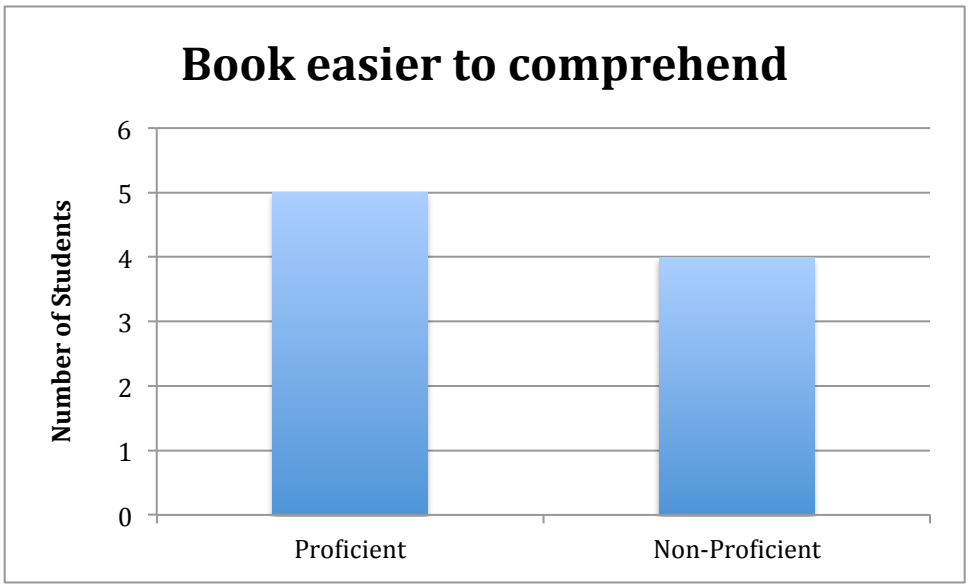

Figure 10. Book easier to comprehend.

Nine participants (Abby, Polly, Priscilla, Pablo, Patrick, Bob, Bill, Bart, and Belinda) felt that it was easier to comprehend using a book (Figure 10). Of these nine, five out of 18 or 28% were proficient and four out of 10 or 40% were non-proficient. Bob, Bart and Priscilla had difficulty elaborating as to why they prefer a book. Polly stated that it is easier to see the text in a book and that a computer is distracting. Bert agreed that that a computer is distracting so it is easier to comprehend when reading a book.

Belinda indicated that there are "bigger spaces" in a book, and on a computer everything is "clumped together." Belinda also added, " There is so much going on on a computer." Abby preferred a book because felt that there are a "million different ways" to do something on a computer and that she gets "totally confused."

Pablo said that he understands better using a book because he likes to use a "regular" dictionary and because he uses close reading skills. He explained that when using close reading skills, he takes notes by hand next to each paragraph to locate the main idea. Patrick stated that he understands better while reading a book because on a computer, the words "pop out" and hurt his eyes.

A natural follow-up to question 3(a) was, "Do you often read on a computer?" Only Brittany and Brandon said that they read on a computer often at home. The remaining participants answered that they do not often read on a computer. All of the participants indicated that they read on the computer at school "once in a while, and when they have to take tests sometimes."

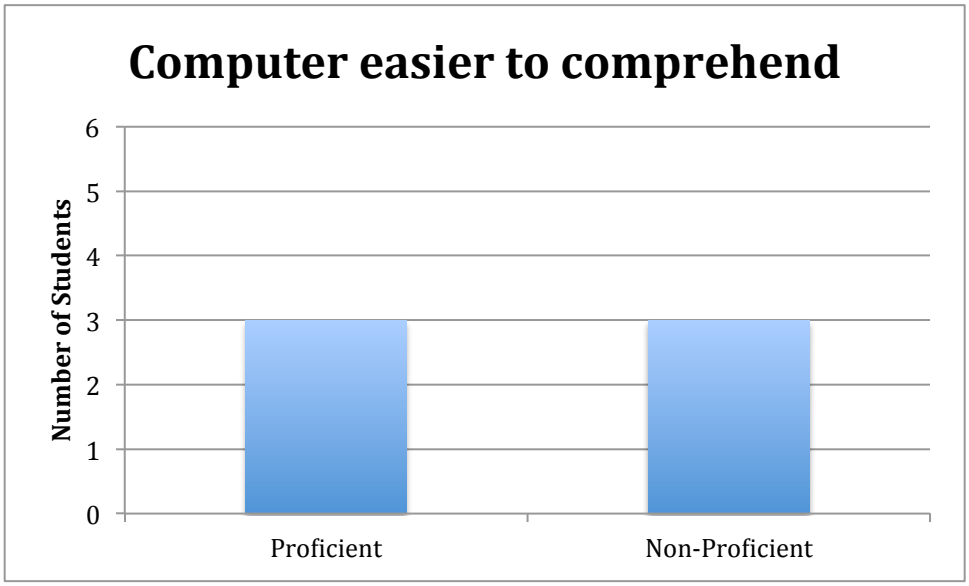

Figure 11. Computer easier to comprehend.

Six participants (Pamela, Payton, Paula, Brandon, Ben, and Brian) believe that it is easier to comprehend when reading on a computer (Figure 11). Of these six, three out of 18 or 17% were proficient and three out of 10 or 30% were non-proficient. Pamela said that the highlighted bold words helped her because "it took her to the definition."

Paula said that text on a computer is easier to comprehend because "I like that important words were highlighted and bold" (hyperlinks). Brandon likes the highlighter tool because it helps important words stand out. He added, "We aren't allowed to highlight in our textbooks." Ben's response was more descriptive. He stated that it is much easier to understand on a computer because "you can't watch a video in a book," and "I can have the computer read it to me if I don't understand." Brian only indicated that he preferred the computer because it "was cool and easier to scroll around instead of flipping pages." He was not able to describe why it is easier for him to comprehend on a computer.

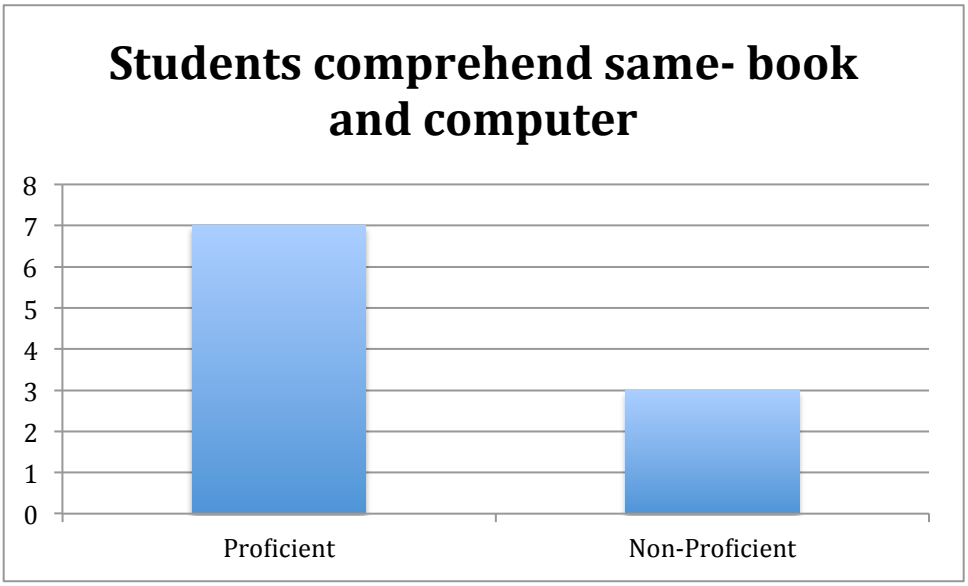

Figure 12. Students comprehend same- book and computer.

Ten participants (Andrea, Anna, Patricia, Paige, Peggy, Pauline, Palmer, Betty, Brenda, and Brittany) stated that they are able to comprehend about the same whether they are reading a book on reading on the computer (Figure 12). Of these 10, seven out of 18 or 39% were proficient and three out of 10 or 30% were non-proficient. Note that both Andrea and Anna were not able to explain why they feel that there is no difference between reading a book or the computer, and neither felt that anything was distracting in

the selected text. Patricia said that comprehending is the same on both except there are tools on the computer if "you want to use them." Paige said she comprehends the same on both the computer and a book, but a book is just "easier to handle." Neither Peggy nor Pauline was able to describe why they feel they comprehend the same when reading on a computer and a book. Palmer said, " I would understand the same, but I wouldn't read it the same way." He elaborated that he would probably just start reading a book, but he might look at other things on the computer. Betty said, "It's not very different…a book has details to the story, and the computer has details to the story…you are still reading words." Brenda said, "You can't do the same things on a book and a computer, like use the tools, but I understand it the same." Brittany said that they are the same for her because "she reads on both all of the time and there isn't any difference."

3b.Was there anything that you saw in the text that helped you better understand what you were reading? Was there anything that distracted you?

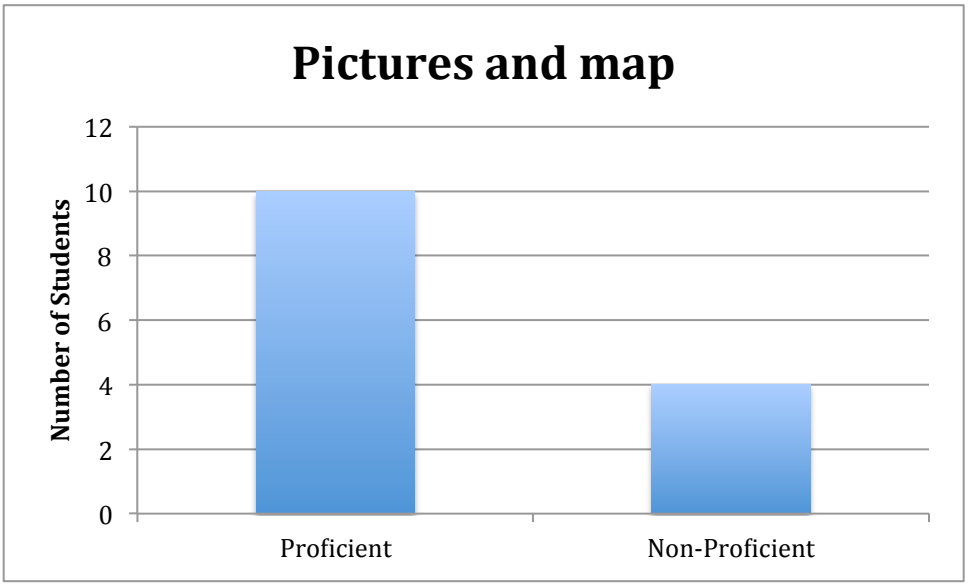

Figure 13. Pictures and map.

Fourteen participants (Abby, Anna, Palmer, Patrick Pauline, Polly, Pamela, Payton, Paula, Peggy, Bill, Betty, Brandon, and Ben) all said that the pictures and the map helped them to understand what they were reading (Figure 13). Of these 14 participants, 10 out of 18 or 56% were proficient and four out of 10 or 40% were non-proficient. Abby said that she thinks that a "map is useful when you are reading about geography, so you can picture it."

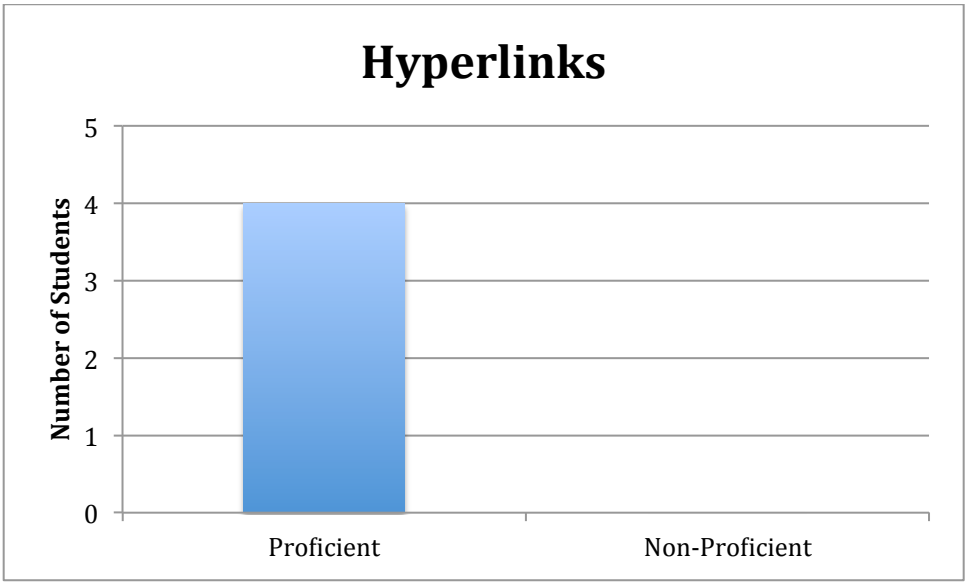

Figure 14. Hyperlinks.

Four out of 18 proficient participants or 22% (Ava, Polly, Paula and Palmer) found that the highlighted bold words (hyperlinked to definitions) were helpful because they clicked on the words and saw the definitions (Figure 14). It is interesting to note that only proficient readers reported using hyperlinks, as this information supports the research of Coiro (2011) where she found that readers who struggle with linear text or lack basic computer skills have difficulty in locating and relating relevant information from one text to another and will have difficulty in understanding hypertexts. Dobler & Eagleton (2015) add that proficient readers know that online information can be hidden

beneath several layers of links and that monitoring comprehension is more complex than checking whether the text makes sense.

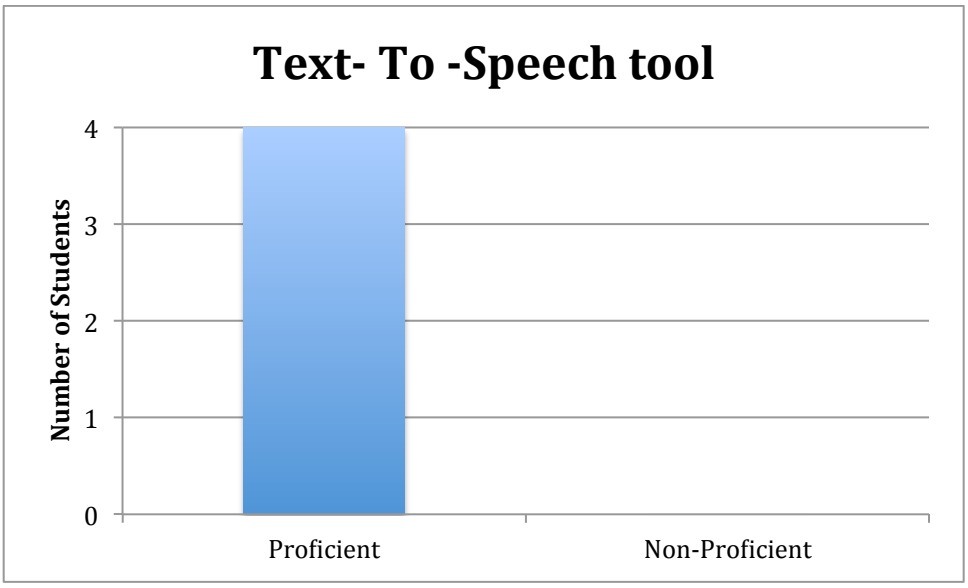

Figure 15. Text-To-Speech tool

Four out of 18 proficient participants or 22% (Andrea, Pauline, Patrick, and Parker) said that the text to speech tool or the "listen" tool (text is read by the computer to the reader) would be helpful (Figure 15). Pauline said, " I didn't use the text to speech button, but if I was having trouble understanding, it might be helpful if I could hear it." Parker elaborated by saying, "I didn't use the text to speech tool, but it would be good for the computer to read it to me so then I could listen for the important things." Parker also said that he used the digital sticky notes to "keep track of facts." Peggy and Paula also said that the digital sticky notes are helpful.

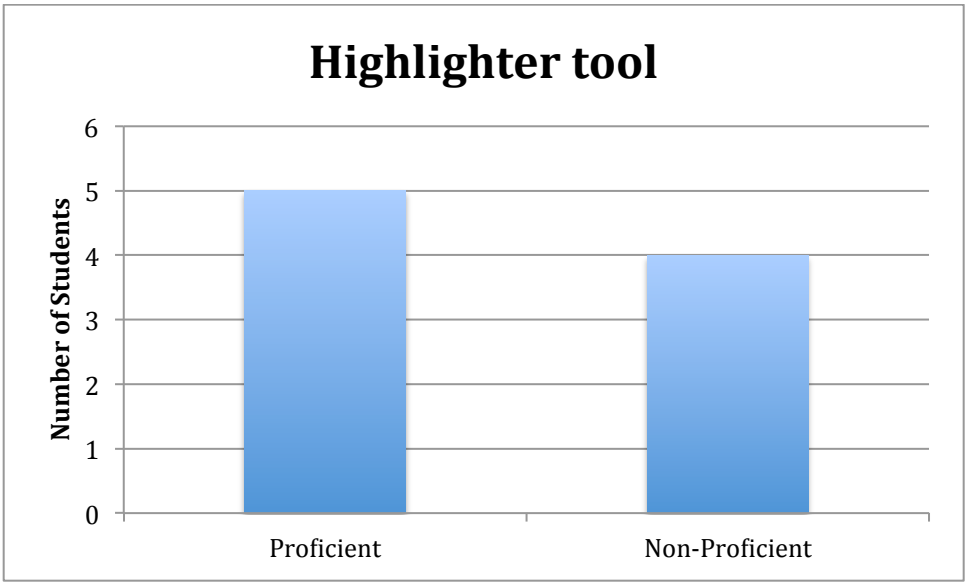

Figure 16. Highlighter tool.

Nine participants (Abby, Andrea, Polly, Paula, Pauline, Bob, Bill, Brenda, and Brandon) used the highlighter tool (Figure 16). Of these nine, five out of 18 or 28% were proficient and four out of 10 or 40% were non-proficient. Brenda explained that she used the highlighter tool to "make the words stand out," and Andrea said that the highlighter tool "makes it easier to see the important stuff." The other participants who said that the highlighter helped could not explain why it helped them.

Seven participants (Ava, Andrea, Pablo, Paige, Patricia, Bert, and Belinda) explained that the pictures and maps were a distraction to them. Of these participants, five out of 18 or 28% were proficient and two out of 10 or 20% were non-proficient. Ava indicated that the bright colors of the pictures distracted her. Belinda added that the numbers in the text distracted her while she was reading and she is also distracted if she does not know a word. Interestingly, four participants (Anna, Pamela, Patrick, and Ben) found the pictures and map to be both helpful but also a little distracting. Bert stated, " I just think that reading on the computer is very distracting…I keep clicking around on

different pages and clicking down here [referencing the digital tools at the bottom of the screen]. I lose my place all the time." Bert's statement supports research by Dobler & Eagleton (2015) where they note that when reading digital text, it is necessary to know where one is in the text and how to find the text again, if rereading is necessary. The researchers also noted that with the forward and backward movement, it is possible that the reader may forget their questions or the information that they had already read.

Pamela and Betty both found that the highlighted bold words (hyperlinks) were a distraction. Pamela said, "My eyes kept wanting to go back to those words." Bill and Peter both indicated that the words seemed to be "cut off" and that it was distracting to them. There were two proficient readers and two non-proficient readers who did not have an opinion on the digital tools.

Analysis of Comprehension Questions

At the end of the selected text, there were four multiple choice comprehension questions. Each of the four questions was designed to assess the skills of determining importance, finding supporting details, inference, and recall. According to Chen (2009), readers with metacognitive knowledge can determine text difficulty, topics of interest, what the testing format may be, and how to answer test questions by selecting various strategies or acquiring resource materials. From this previous research, one might expect that more proficient readers would be able to correctly answer these questions than non-proficient readers.

For comprehension question one in which the skill assessed was "determining importance," 6 out of 18 proficient participants or 33% answered this question correctly. One non-proficient student answered this question correctly.

With regard to comprehension question two in which the skill assessed was "finding supporting details," 17 out of 18 proficient participants or 94% answered correctly, while nine out of 10 or 90% non-proficient participants answered correctly.

Comprehension question three assessed the skill of making inferences. Eleven out of 18 proficient participants or 61% answered correctly while seven out of 10 non-proficient participants or 70% answered correctly. According to Bloom (1959), inferencing is a higher- level thinking skill and Marzano (2010) posits that "making inferences is the foundation to many higher-level thinking processes" (p. 81). Higher level thinking processes is an area in which most non-proficient struggle, however in this instance, almost all of the non-proficient readers answered this question correctly.

Comprehension question four assessed the skill of recall. Fifteen out of 18 proficient participants or 83% answered correctly, while 10 out of 10 non-proficient participants or 100% answered correctly. For a proficient reader, the focus is not necessarily on basic recall as the sole means of making sense of text, but on deeply understanding the content in the passage by using higher level thinking skills as Anastasiou & Griva (2009) eluded to in their research surrounding proficient and non-proficient readers. The results of the comprehension questions provided insight as to the processes that proficient and non-proficient readers use when they make meaning of text.

Themes Identified in the Interviews

Throughout the participant interviews, themes emerged which relate to previous research conducted surrounding the topic of metacognition and the new literacies of online research and comprehension. According to Chen (2009), metacognition is two-fold: thinking about one's thinking and self-monitoring. Readers are able to monitor their

comprehension through the use of strategies to determine their level of understanding (McNamara, 2012). In addition, when readers use strategies, a common language is created, enabling them to express their ideas and build confidence in their ability to articulate their thoughts (Keene & Zimmerman, 2013).

The most obvious theme that emerged was that of self-monitoring. This theme emerged from the interview responses and points to metacognition, or thinking about one's thinking through the use of strategies such as using context clues, rereading, and checking for understanding by making connections and thinking about the story. Overall, there were more proficient participants reported using strategies to help them comprehend text than did the non-proficient participants, but the numbers were very close.

The second theme that emerged from the interview responses was predicting. Several participants indicated that they preview the text by looking at pictures, maps, the title and headings in order to "see what the story will be about." As with the first theme, the proficient group reported previewing the text more often than the non-proficient group, but again, the numbers were very close.

The third theme that emerged was that of goal setting or finding a reading purpose. Many of the participants reported (and the researcher observed) that they read the comprehension questions before they started reading the text. The number of proficient and non-proficient participants who read the questions before reading, were almost equal, however there were more proficient students who reported this behavior.

According to Coiro & Dobler (2007), skilled readers routinely use self-regulation such as goal setting, predicting, and monitoring. These findings also support previous

research (Anastasiou & Griva, 2009) (Pookcharoen, 2009), which indicates that proficient readers are more metacognitively aware of how they make meaning of text than are non-proficient readers (Table 2).

Table 2

Strategies Identified in Interviews

Student Participants	Internet Search	Preview Text	Context Clues	Reread	Read Questions	Just Read	Check for Understanding
Abby	X	X	X				
Andrea				X		X	
Anna	X	X	X	X			X
Ava							X
Pablo	X		X	X	X	X	
Paige				X		X	
Palmer	X	X	X	X			
Pamala		X	X			X	
Parker				X			X
Patrick	X				X		
Patricia	X	X	X				
Paula							X
Pauline		X		X			
Payton	X	X	X				
Peggy	X	X	X				
Peter						X	
Polly			X		X		
Priscilla	X	X		X			
Belinda			X	X		X	
Ben	X	X			X		
Bert						X	
Betty		X	X	X			
Bill			X	X	X		
Bob				X		X	
Brandon				X	X		
Brenda				X			X
Brian		X		X	X		
Brittany		X		X			

Note. Names beginning with A or P: students who scored Advanced or Proficient on grade 4 PSSA (Proficient Group)
Names beginning with B: students who scored Basic on grade 4 PSSA (Non-Proficient Group)

As with the strategies, the proficient participants referenced using the digital tools more often than the non-proficient participants. However, it is interesting to note that the highlighter tool was referenced an almost equal number of times by both proficient and non-proficient readers yet only two of the nine participants (Andrea and Brenda) who referenced using the highlighter could explain why it was helpful to use the highlighter (Table 3).

Table 3

Tools Identified in Interviews

Student Participants	Pictures and Maps	Hyperlinks	Text-to-Speech Tool	Highlighter
Abby	+			+
Andrea	-		+	+
Anna	+			
Ava	-	+		
Pablo	-			
Paige	-			
Palmer	+	+		
Pamela	+	-		
Parker			+	
Patrick	+		+	
Patricia	-			
Paula	+	+		+
Pauline	+		+	
Payton	+			
Peggy	+			
Peter				
Polly	+	+		+
Priscilla				
Belinda	-			
Ben	+			
Bert	-			
Betty	+	-		
Bill	+			+
Bob				+
Brandon	+			+
Brenda				+
Brian				
Brittany				

Note. Names beginning with A or P: Students who scored Advanced or Proficient on Grade 4 PSSA (Proficient)
Names beginning B: Students who scored Basic on Grade 4 PSSA (Non_Proficient)
+ = helpful
-- = distracting

Chapter Summary

This chapter presented the research findings for this qualitative research study. The findings from this study differ slightly from previous research, which indicates that proficient readers are aware of their reading purpose and use strategies for processing texts (Grabe & Stoller, 2002; Pressley, 2002) and use reading strategies more often than non-proficient readers in order to make meaning of digital expository text in an online environment (Coiro & Dobler, 2007). Although the proficient readers reported using strategies more often than the non-proficient readers, the difference between the two groups was minimal. Possible reasons for these findings could be contributed to the small population size or to an issue of self-reporting. Since making meaning of text is internal with limited observable behaviors, it is challenging for the researcher to verify how meaning making happens.

Likewise, the proficient readers reported that they used digital tools that were available in the text to help them make meaning, more often than the non-proficient readers, however the difference between the two groups was slight. Several participants mentioned that the tools such as the video clip, the text-to-speech tool and the Internet could be useful, but the participants did not use them. Overall, the use of digital tools was minimal as reported by the participants and observed by the researcher.

These findings are further discussed in Chapter 5. Research conclusions are identified and provide the framework for the discussion. The implications of these conclusions are presented for administrators and educators. Finally, suggestions are made for future research that may build upon and serve to further inform the current

research surrounding the topic of how fifth graders make meaning of digital expository text on a computer.

CHAPTER 5

CONCLUSIONS

With national educational reforms such as the Common Core State Standards in place, there has been a focus on literacy skills that include higher-level thinking and that place digital literacy skills at the forefront. Leu, Forzani, et al (2013) posit that with the implementation of the Common Core State Standards, there are now unprecedented demands of students' proficiencies. For this reason and together with the increasing availability of digital text in the classroom, it has become necessary to understand how students navigate through and make meaning of digital expository text. This chapter provides a summary of research findings along with a discussion of each research question, research implications, recommendations for further research, and finally, a chapter summary.

Summary of Research Findings

The purpose of this qualitative research study was to investigate how proficient and non-proficient fifth grade students comprehend digital expository text with regard to overall retention. The study consisted of a series of research questions that focused on how fifth grade students make meaning of digital expository text on a computer. The themes that emerged from the responses to the interview questions validated much of what previous research says about strategy use and metacognition. An interesting finding that differs from previous research is that nearly the same number of participants from each group reported using strategies in this particular study. This finding could be attributed to the small population size or be due to possible issues of self-reporting by the participants. With self-reporting, there is a question of validity. Self-reports may contain

inconsistencies due to inaccurate recall of what the reader was thinking while reading, and the readers may rationalize their behavior after the reading event (Anastasiou & Griva, 2009). Lau (2006) found that although readers may know, or name certain strategies, sometimes they do not know how to use them.

Discussion of Research Question 1

The first research question in this study sought to investigate the strategies that fifth graders use in order to make meaning when they read digital expository text on a computer. In order to uncover these strategies, the researcher asked two interview questions along with follow up questions as necessary. The first interview question asked the fifth graders to describe what helped them to understand the words and sentences when reading. In response to this question, 10 out of 18 or 56 % of the proficient readers and five out of 10 or 50% of the non-proficient readers reported using reading strategies such as previewing the text, using context clues, and rereading in order to be able to monitor their comprehension. The participants reported and the researcher observed and noted that approximately one out of five proficient and non-proficient readers previewed the text in order to "get their minds ready to read" and to determine what the story was going to be about. The researcher observed these readers flipping the pages of the story and moving the text around on the screen in order to be able to view different sections of the text. Three out of 18 or 17% of the proficient readers and one out of 10 or 10% of the non-proficient readers stated that they used context clues to understand the passage. When these participants were asked to explain what it means to use context clues, all of the participants explained that they "need to look at the sentences or words before and after the trouble spot because sometimes it makes it easier to understand." A few of the

participants credited their teacher for showing them how to use context clues. Three out of 18 or 17% of the proficient readers and two out of 10 or 20% of the non-proficient readers reported that they reread the passage. Two proficient participants reported using background knowledge and making personal connections to the text. Three participants in the proficient group and one participant in the non-proficient group reported checking their understanding by thinking about the story, trying to focus, and remembering what was happening in the story.

Interestingly, four out of 18 or 22% of the proficient readers and four out of 10 or 40% of the non-proficient readers indicated that a "strategy" they use is to look at the comprehension questions first and then simply skim to find the answers. This finding raises a question that perhaps students are still being taught to read for the purpose of answering questions on a test. In Durkin (1978), the data suggested that teachers were "mentioners, assignment givers and checkers, and interrogators" (p. 523) instead of being instructors who adhere to instruction, application, and practice. Thirty-eight years after Durkin (1978) posited that comprehension instruction had been slighted, it appears that this may still ring true. From this finding, it is worth noting that a higher percentage of non-proficient readers may have reported this behavior because they struggle to make meaning of the text while reading and just want to be able to answer the questions correctly.

The comprehension questions that were at the end of the passage were designed to assess the following skills: determining importance, identifying supporting details, making inferences, and recall. A particularly interesting finding is that the non-proficient group scored better than the proficient group on the questions that assessed making

inferences. A more detailed analysis of the comprehension questions follow in the next section of this chapter.

Several fifth graders could not identify or clearly describe what helps them make meaning of digital text on a computer when answering the first research question. This raises the point that perhaps with more direct instruction, application, and practice of strategies, these participants could become more metacognitively aware of how they make meaning and improve their comprehension skills.

The second interview question sought to uncover the process that the participants use when they read text on a computer. Five out of 18 or 28% of the proficient readers responded that they "just start to read," while three out of 10 or 30% of the non-proficient readers responded the same. A follow-up question revealed that these students started reading at the beginning of the passage and continue through until the end. Seven out of 18 or 39% of the proficient readers and three out of 10 or 30% of the non-proficient readers indicated that they preview the text, and that they looked at the title and headings. When describing the process they use to read, four out of 18 or 22% of the proficient readers and one out of 10 or 10% of the non-proficient readers indicated that they try to think about what is going on in the story.

Discussion of Research Question 2

The second research question sought to uncover what fifth graders do when they read a passage that is difficult to understand. Overall, it seemed easier for all of the participants to answer this question compared to research question one. It became obvious that this question was easier to answer because most readers struggle with comprehension at one time or another, whereas when asked to identify reading strategies,

it may have been conceptually difficult for a fifth grader who was unaware of how they make meaning of text.

Fifth graders used some of the same strategies such as rereading and using context clues that were presented in an analysis of the first research questions. Seven out of 10 or 70% percent of the non-proficient readers who have difficulty reading said that they reread sections of the reading passage when they did not understand the content, whereas five out of 18 or 28% of the proficient readers said that they reread a passage that was difficult to understand. This finding supports the research conducted by Anastasiou & Griva (2009) where rereading as a monitoring strategy was reported most often by poor readers. From this data, the researcher infers that the non-proficient readers may simply continue to reread because they lack reading strategies that would support making meaning, such as questioning the text, making inferences, determining importance, and monitoring comprehension (Coiro & Dobler, 2007).

Also noted is that more than half of the proficient readers said they would "search it up" if they did not understand something they read. Only one out of 10 or 10% of the 5th graders who have difficulty with reading said that they would "search it up." Proficient readers clarified this statement by telling the researcher that they would use Google, Wikipedia, or dictionary.com to try to find the information they needed to understand what they were reading. The one non-proficient reader who said that he would "search it up" indicated that he would go to dictionary.com right away to get definitions of the words that he did not understand. It seems that the students equate understanding as knowing the meaning of words, but do not make the connection between words and the construction of meaning, as Goudvis & Harvey (2002) indicated.

The students seemed to rely on only a few reading strategies in order to make meaning, which in turn, can lead to limited understanding. This finding validates Kletzien (1991), where 48 proficient and non-proficient high school students relied on a few reading strategies in order to make meaning on three reading difficulty levels. Kletzien (1991) posited that it seemed readers repeatedly used the strategies that they felt comfortable with, and did not try other strategies that they may have known that could be effective.

Discussion of Research Question 3

The third research question sought to explore what features or tools of the digital text fifth graders use to improve comprehension or if these features or tools interfered with comprehension. In order to encourage the fifth grade readers to think about the features or tools of the digital text, the researcher asked the participants if they were able to comprehend text better when reading a book, when reading on a computer, or if they comprehended the same when reading a book or on a computer. Most readers were eager to reply and seemed to have an opinion. There was a need to clarify to the readers that this question was not seeking to find out if they *preferred* a book or a computer, but with which medium did they best comprehend. The need for clarification arose when the participants answered the question with responses such as, "I like to be able to flip the pages," or "I like to hold a book," or "It's easier to see the pages in a book."

The reasons that were cited as to why nearly an equal number of readers comprehend better when reading a book, is because a book is less distracting than a computer and it is easier to see, so they can "read it better." There was one proficient reader and two non-proficient readers who could not explain why they feel that they

comprehend better when reading a book. It is possible that due to their comfort level with reading a book, these participants feel that they comprehend better when reading a book. For example, several participants said that when they read at home, they read a book because they are "used to reading a book," and also because they do not have books downloaded on their computers at home.

An equal number of readers from each group said that they comprehend better when reading on a computer. All of these participants except one non-proficient reader who indicated that they comprehend better when reading a computer said that it was the digital tools, such as the highlighter tool, the hyperlinks (vocabulary words that were highlighted and bold), the available video clip, and the text-to-speech tool that could help them comprehend. When the text-to-speech tool is selected, the text is read aloud by the computer and the text is highlighted as each word is pronounced. It is worth noting that although some participants indicated that the video clip, the text-to-speech tool, and an Internet search would be helpful, they did not use these tools. It is possible that these tools were not needed in order to comprehend this text. This does however, raise the question as to whether the students truly know what the tools are and how they can be helpful. It was somewhat surprising to the researcher that more of the students did not click on each of the tools to explore what their functions were, however in the elementary school where this study was conducted, there are five carts of Google Chromebooks (laptops) for students to use, but each student does not have a laptop for his or her exclusive use on a regular basis. This presents a challenge for educators to plan time for the application and practice of reading strategies and digital tools while reading digital text.

A similar number of readers from each group explained that they were able to understand equally well when reading a book or reading on a computer. Two of the proficient readers were not able to explain why they saw no difference between a book and computer, while others said that it is the same because "there are words in a book and there are words on a computer…no difference." One of the proficient readers seemed to be insightful when he indicated that he understands the same when reading a book or on a computer but that he doesn't "read it the same way." Still others indicated that although they comprehend the same, they "like that you can do different things on a computer."

When asked about the "different things you can do on a computer" and what the readers felt helped them understand better when reading digital text, readers from both groups indicated that the pictures and the map helped them to better understand. The pictures and map that were in the selected passage are not considered digital tools but are worth mentioning as they assisted some of the readers with comprehension. One of the readers said that the map helped her with one of the comprehension questions, and another reader said that the pictures helped him to picture the story in his head. For example, the picture of the 12-year-old boy helped this particular reader make a personal connection as far as similarities between the boy and himself. The reader wondered if he would actually be able to climb Mount Everest like the boy in the story did. Interestingly, several readers from both groups said that the pictures and map were distracting and three readers in the proficient group and one reader from the non-proficient group said that they found them both helpful and distracting. This small group of readers explained that the pictures and map can be helpful but sometimes they feel like they "keep wanting to look at them" and have trouble focusing on the reading.

It was only proficient readers who indicated that the hyperlinks helped them with the vocabulary words in the passage, while one reader in each of the groups said that they were a distraction. There were readers in each group who said that they like to use the highlighter tool, however only one proficient and one non-proficient reader explained why they like the highlighter. The non-proficient reader said that the highlighter helps the words or ideas stand out, and the proficient reader said that the highlighter "makes the important stuff stand out." The other readers could not explain why the highlighter would be helpful. When asked to explain how a highlighter is helpful, these readers responded that they really did not know why it is helpful. It is possible that the highlighter was not necessary for this particular reading or that they do not have experience using this tool effectively but can imagine that it would be useful.

As another follow up question, the researcher asked the readers whether they often read on a computer. Surprisingly, only one reader from each group said that he often reads on a computer. Others said that they only read on a computer "once in a while" in school and that they take some tests on the computer. As was mentioned previously, there are carts of Google Chomebooks available for student use, but each student does not have a laptop to use exclusively, which could be why the students do not have much experience reading digital text and using the available digital tools. The readers indicated that they hardly ever read on the computer at home. Several participants indicated that when they read at home, they read books since they do not have any books on their computers.

Research Implications

The interviews conducted throughout this study resulted in a few key findings regarding the strategies that fifth graders use to make meaning of digital expository text. One of the themes that emerged from the interview responses was self-monitoring, as all of the readers in this study reported using at least one reading strategy while reading the selected passage. The second theme was predicting by previewing the text (reading the title and headings and looking at the map and pictures). Collectively, thirteen or 46% of the readers indicated that they preview the text in order to get their mind ready to read and to predict what they would be reading. The third theme was goal setting or finding a reading purpose. While only three out of 18 or 17% of the proficient group indicated that they look at the comprehension questions before they read the passage, four out of 10 or 40% of the non-proficient group said that they look at the questions before reading so that they know what "they need to do at the end."

The proficient readers tended to use strategies such as previewing the text and using context clues slightly more often than did the non-proficient readers when reading digital expository text on a computer. While this finding validates previous research done by Paris, Lipson & Wixson (1983), which found that there is a difference in metacognitive strategy use between readers who possess varying reading levels in terms of frequency and use, the difference between readers was minimal in this study. In contrast, the non-proficient group reported using the strategy of rereading more often than the proficient group when reading something that is hard to understand, which validates the research done by Anastasiou & Griva (2009).

Based on these findings, there are implications for administrators and educators and the way in which they approach reading instruction in content-area classrooms within their districts. First, it is imperative that reading strategies and skills be taught and students given opportunities to use the strategies with the wide range of texts available in the 21st century. Instruction needs to be followed by discussion to ensure deep understanding beginning in elementary school through high school in order to prepare students to be college and career ready. According to the Common Core State Standards Initiative (2016), in order to be college and career ready, one must be able to comprehend and evaluate complex texts across a range of disciplines, set a purpose for reading, and be capable of using technology and digital media strategically. Professional development for school staff at all levels regarding the instruction of strategy use in all content areas needs to be a priority, along with adequate follow-up and training to support the staff. The fact that six readers in the proficient group and four in the non-proficient group could not identify or clearly explain what helps them comprehend when they read on a computer (in response to interview question one) raises a question relative to metacognitive awareness and comprehension instruction. It appeared that in general, these participants did not have a "toolbox" of tools ready to use when needed or a "plan of attack" when reading digital text. However, when asked what they do when they read something that is hard to understand (interview question 3), all participants were able to respond with at least one strategy. In the area of instruction, it is necessary to revisit Durkin's (1978) stance on what comprehension instruction truly means: instruction, application, and practice. Our focus needs to be on comprehension instruction, not comprehension *assessment*.

Second, only two of the fifth grade participants in this study stated that they regularly read on a computer at home, and all of the participants stated that they read on the computer at school "once in a while", or when they have a test to take. Many indicated that when they read at home, they read a book since they do not have books downloaded on their computers. With the increasing amount of digital text becoming available in classrooms, it is necessary to incorporate more instruction, application, and practice where digital text and digital tools are concerned. As many school districts have started furnishing students with laptops or electronic tablets, it is now important to have a discussion within school districts as to how we are going to educate and support students in reading on these devices to make them aware of the different nuances of digital text and tools and to assist with their comfort level while embracing the infusion of technology and digital text. Part of our comprehension instruction in content area classrooms needs to include how reading strategies and digital tools can be used on a computer or electronic device to encourage deep thinking and understanding of the text.

Primarily, traditional reading strategies such as previewing text, using context clues and checking for understanding were used in this study to make meaning of the text. However, the digital tools were minimally used, and some were not explored. Are we instructing readers how to use the tools that are available in this age of digital text that support deep comprehension?

Recommendations for Further Research

This study sought to investigate fifth graders' reading strategies when reading digital texts with regard to overall retention of content material by proficient and non-proficient readers. The researcher suggests that the findings of this study could be

representative of other schools and settings if this study were to be conducted in a more diverse setting with a diverse group of participants. This study could be replicated in an urban school or with different sub-groups such as students from affluent backgrounds or from high poverty backgrounds. It would also be interesting to investigate how students in a different age group, such as a middle school, make meaning of digital text on a computer.

In addition, a study surrounding this topic would be beneficial using a larger number of participants and using different instrumentation such as surveys and a think-aloud protocol. Data such as the frequency of computer use and the comfort level of reading on a computer could be gleaned from a survey or questionnaire. A think-aloud protocol helps students learn to monitor their thinking as they read a passage. Students are guided by a series of questions that they think about and answer aloud while reading. (All About Adolescent Literacy, 2016). According to Pressley & Afflerbach, (1995), verbal protocols offer reliable insight regarding a reader's thinking and actions when conducted during a task. For the purposes of this study, a think-aloud protocol would have provided rich data as to the process that the reader uses while making meaning of text, how meaning is constructed and would support the understanding of the text. As far as implications for the classroom, this insight would be invaluable for educators as to how reading instruction should be implemented. Listening to and observing a student who thinks aloud while reading enables the educator to get a detailed look at how a student makes meaning of text, and as a result, instruction can be scaffolded to help the student refine their use of reading strategies for more efficient reading.

Further research could also focus on the correlation between different strategies that are used while reading digital text and the effect that strategy use has on reading comprehension when responding to open-ended questions.

Finally, the researcher would suggest studying the methods in which other schools have used to integrate technology into their classrooms and how they teach reading comprehension using digital texts and tools in order to provide students with the digital literacy skills that are now necessary.

Chapter Summary

The purpose of this research study was to investigate the strategies that fifth graders use when reading digital expository text on a computer. This study consisted of research questions that sought to reveal the strategies and digital tools that the participants used to make meaning of a selected passage on a computer.

While this qualitative study has validated existing research that exists surrounding the topic of metacognition and strategy use, it has also added to the existing research by investigating how both proficient and non-proficient fifth graders make meaning of digital expository text on a computer. There has been much research focused on the use of reading strategies, (Cho, (2013), Coiro (2011), and Ness (2007)), but there is a gap in the research on how proficient and non-proficient elementary students make meaning of digital expository text. This qualitative research study is an initial investigation, which can serve to inform further research. More research is necessary to dig deeper into the metacognitive thought processes of fifth graders, but this research study serves as a starting point.

The analysis of the data gathered during this particular study indicated:

1. Proficient readers use strategies and digital tools more often than non-proficient readers, although the results of this study indicated that the difference in the number of proficient and non-proficient readers reporting strategy use is minimal.

2. There is a need to revisit what comprehension instruction looks like in all content area classrooms, especially with the use of digital text and digital tools.

3. There is a need for elementary students to have more experience reading and analyzing digital expository text, as the amount of digital text is increasing in the classroom and in light of the PA Core and the mandate for digital literacy skills.

Reading comprehension is the foundation to becoming literate, informed citizens and lifelong learners. As administrators and educators it is our responsibility to stay current with educational trends and practices as technology continues to transform the way we teach as well as the way that students learn. It is also our responsibility to continue to identify and target areas of need from the time students begin reading in elementary school through the time they receive their high school diplomas so that we can prepare our students for a lifetime of learning.

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Appendix A

Cover Letter To Informed Consent- Pilot Study

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February 18, 2016
Joseph Kondisko, Curriculum Director
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187 Five Points Richmond Rd.
Bangor, PA 18013

Dear Mr. Kondisko:

Teaching reading comprehension skills is perhaps the most important subject in the elementary grades. This letter is being written to request your permission to conduct research at your institution, specifically DeFranco Elementary School. In order to learn the processes that elementary students use in comprehending material, my research will focus on what randomly selected 5th graders say about the process of comprehending text material.

This qualitative pilot study is an exploration of how fifth grade students make meaning of digital expository text. The pilot study seeks to reveal what reading strategies the students use while reading text on a computer in an online environment. DeFranco Elementary will be the only school participating in the pilot study pending your approval.

This pilot study is being done in partial fulfillment of a doctoral degree in Administration and Leadership offered by Indiana University of Pennsylvania in collaboration with East Stroudsburg University. By granting me permission to interview a select group of students, you will be contributing to the body of knowledge surrounding what reading strategies fifth grade students use while reading expository text on a computer. This pilot study could have a significant impact on the way that reading instruction is delivered. This pilot study could guide parents, teachers, and administrators in making educational decisions that are most meaningful for students. These decisions are of extreme importance for they will ultimately affect the ability of students to achieve success.

With his approval, the researcher will work with Mr. Kerstetter, DeFranco Elementary School's building principal regarding the recruitment of participants. The researcher will

send parent consent forms via U.S. Mail. The researcher will indicate to the parents of the participants that their participation is completely voluntary.

Participants will each be involved in an interview session. The interview session will last approximately 15-20 minutes. All sessions will be audiotaped. The audiotape will be transcribed after the interview sessions. During the interview session, participants will be asked questions about how they read on a computer, and what they do when they do not understand what they are reading. I do not anticipate the risks associated with answering the questions to be greater than any risks that they encounter on a day-to-day basis.

Any information collected in relationship to this pilot study will be kept confidential. The research records will be kept private and will be stored in a locked cabinet in the researcher's classroom. Only the researcher will have access to the research records.

I will not begin my study until I have approval of my IRB from Indiana University of Pennsylvania. Your signed consent on your institution's letterhead will be included in my IRB. Following this cover letter, you will find the consent form for your printing and signature. The consent form should be sent to: Melissa Martinez, Bangor Area High School, 187 Five Points Richmond Rd., Bangor, PA 18013.

Upon receipt of IRB approval, I will forward a copy of the IRB approved, stamped consent documents.

My ability to conduct and complete this pilot study is dependent on the cooperation of individuals such as you. I want to sincerely thank you for your consideration of my request.

Sincerely,

Melissa J. Martinez, Teacher
Bangor Area School District
187 Five Points Richmond Rd.
Bangor, PA 18013
(610) 599-7011, Ext. 1106

Dr. Douglas Lare
East Stroudsburg University
200 Prospect St.
East Stroudsburg, PA 18301
(570) 570-422-3431

Appendix B

Informed Consent-Bangor Area School District

Indiana University of Pennsylvania
www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

February 18, 2016

Joseph Kondisko, Curriculum Director
Bangor Area School District
187 Five Points Richmond Rd.
Bangor, PA 18013

Dear Mr. Kondisko:

I would greatly value the opportunity to conduct my pilot study within your school district, specifically DeFranco Elementary, and would appreciate your willingness to support my research. My hope is to involve approximately ten students within my study. Research will be compiled through student interviews. Upon receipt of IRB approval, I will forward a copy of the IRB-approved stamped consent documents. If you have specific questions regarding this study and request, please do not hesitate to contact me at the number or email address found below. Thank you so much for your consideration of this request.

Sincerely,

Melissa J. Martinez

Teacher, martinem@bangorsd.org
(610) 599-7011, Ext. 1106
Bangor Area School District
Educational Leadership Doctoral Student
East Stroudsburg University of Pennsylvania
Indiana University of Pennsylvania

AGREEMENT: Permission is granted to participate in the research study described above.

Signature of Curriculum Director: Joseph E. Kondisko **Date**: 3/1/2016

Signature of Researcher: Melissa J. Martinez **Date**: 3/1/2016

Appendix C

Principal's Consent- Pilot Study

Indiana University of Pennsylvania
www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

February 19, 2016
Bangor Area School District
DeFranco Elementary School
267 Five Points Richmond Rd.
Bangor, PA 18013

Dear Principal Kerstetter:
This letter is being written to request your permission to conduct research at your school.

This qualitative pilot study is an exploration of how fifth grade students make meaning of digital expository text. The study seeks to reveal what reading strategies the students use while reading text on a computer in an online environment. Your school will be the only school participating in the pilot study pending your approval.

I am requesting your permission to interview 10 randomly selected fifth grade students at DeFranco Elementary School to determine how fifth grade students make meaning of digital expository text. The study seeks to reveal what reading strategies/processes that 5th grade students use when reading text on a computer. DeFranco Elementary will be the only school participating in the pilot study pending your approval.

This pilot study is being done in partial fulfillment of a doctoral degree in Administration and Leadership offered by Indiana University of Pennsylvania in collaboration with East Stroudsburg University. By granting me permission to interview a select group of students, you will be contributing to the body of knowledge surrounding what reading strategies fifth grade students use while reading expository text on a computer.

The researcher will work alongside of you as DeFranco Elementary School's building principal regarding the random selection of students. The researcher will send parent consent forms via U.S. Mail and will indicate to the parents of the students that their child's participation is completely voluntary. Your assistance will be greatly appreciated in reserving a location for the interview sessions.

The interview sessions will each last approximately 15-20 minutes. All sessions will be audiotaped and the audiotape will be transcribed after the interview session. During the interview session, participants will be asked questions about how they read on a computer, and what they do when they do not understand what they are reading. I do not anticipate the risks associated with answering the questions to be greater than any risks that they encounter on a day-to-day basis.
Any information collected in relationship to this study will be kept confidential. The research records will be kept private and will be stored in a locked cabinet in the researcher's classroom. Only the researcher will have access to the research records.

I will not begin my study until I have approval of my IRB from Indiana University of Pennsylvania. Your signed consent on your institution's letterhead will be included in my IRB. Following this cover letter, you will find the consent form for your printing and signature. The consent form should be sent to: Melissa Martinez, Bangor Area High School, 187 Five Points Richmond Rd., Bangor, PA 18013.

My ability to conduct and complete this study is dependent on the cooperation of individuals such as you. I want to sincerely thank you for your consideration of my request.

Sincerely,

Melissa J. Martinez
Teacher, martinem@bangorsd.org
(610)599-7011, Ext. 1106
Bangor Area School District
Educational Leadership Doctoral Student
East Stroudsburg University of Pennsylvania
Indiana University of Pennsylvania

Bangor Area School District

DEFRANCO ELEMENTARY SCHOOL
A COMMUNITY SCHOOL
267 5 POINTS-RICHMOND RD
BANGOR, PENNSYLVANIA 18013

BUILDING LEADERS - BREAKING BARRIERS - BRIGHTENING FUTURES

Phone: (610) 599-7013 **Fax: (610) 599-7041**

ERIC KERSTETTER
Principal

D. THOMAS TOTH, JR.
Asst. Principal

DEBORAH BOWMAN
Community Schools Director

MICHAEL SYLVESTER
Counselor

RENEE AUBELE
Psychologist

AGREEMENT: Permission is granted to participate in the research study described above.

Signature of Principal,
DeFranco Elementary School:

E. L. Kerstetter **Date:** 2-25-16

Signature of Researcher:

Melissa Martinez **Date:** 3/1/16

Appendix D

Informed Consent- Parent-Pilot Study

Indiana University of Pennsylvania

www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

To: Parents of a fifth grade child at DeFranco Elementary School

Subject: Reading Research to learn more about the process that 5th graders use when reading several paragraphs on the computer.

As parents, I am sure that you are very much aware of how important reading skills are in order to help your child succeed not only academically, but also in their future endeavors.

If you consent, your child will read several paragraphs on the computer and then be asked the following questions:

1. Describe what helps you to understand the material that you are reading.

2. When you read material on the computer, describe the process you use to be able to understand what you were reading.

3. Tell me what you do when you read something that is hard to understand.

4. Is it easier to comprehend using a book or a computer, or are they both about the same?

5. Was there anything that you saw in the text that helped you better understand what you were reading?

Please note that sometimes a follow-up question might be asked such as: “Tell me more about that” or “that is a really interesting approach, tell me more about that.”

Your child's name will remain anonymous and anything s/he says will be kept confidential. The research records will be kept private and will be stored in a locked cabinet in the researcher's office. The researcher will be the only individual to have access to the research records. Neither your child's teacher, nor the school district will have access to the interview material.

Your child's participation in this study is completely voluntary. If you decide to allow your child to participate, your child is free to withdraw at any time by leaving the interview session.

This project has been approved by the Indiana University of Pennsylvania's Institutional Review Board for the Protection of Human Subjects. If you have any questions about the study please ask them now or contact Melissa Martinez by email at mmartine10@live.esu.edu. You may also contact her faculty advisor, Dr. Douglas Lare by email at dlare@po-box.esu.edu. If you have any questions or concerns regarding your rights as a participant in this study, you may contact the Indiana University of Pennsylvania's Institutional Review Board (IRB) by email at irb-research@iup.edu or by phone at 724.357.7730.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO HAVE YOUR CHILD PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Parent signature: _____Date: _____

Participant name
(printed):_____Date:_____

Principal Researcher
signature:_____ Date: _____

Principal Researcher
(printed): _____ Date:_____

Appendix E

Cover Letter to Informed Consent- Study

Indiana University of Pennsylvania
www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

February 5, 2016
Northampton Area School District
District Administration Building
2014 Laubach Ave.
Northampton, PA 18067

Dear Superintendent Kovalchik:

My name is Melissa Martinez and I currently serve as a teacher within the Bangor Area School District. I am currently conducting research surrounding the topic of fifth graders reading expository digital text and am seeking approval to gather data in reference to my study.

This letter is being written to request your permission to conduct research at the Lehigh Elementary School to learn how fifth grade students make meaning of digital expository text.
The study seeks to reveal what reading strategies the students use while reading text on a computer in an online environment. Lehigh Elementary will be the only school participating in the study pending your approval.

This study is being done in partial fulfillment of a doctoral degree in Administration and Leadership offered by Indiana University of Pennsylvania in collaboration with East Stroudsburg University. By granting me permission to interview a select group of students, you will be contributing to the body of knowledge surrounding what reading strategies fifth grade students use while reading expository text on a computer.

The researcher will work with Dr. Lori Kuhns, Lehigh Elementary School's building principal regarding the random selection of students. The researcher will send parent consent forms via U.S. Mail and will indicate to the parents of the students that their child's participation is completely voluntary.

Each child will each be involved in an interview session, lasting approximately 15-20 minutes. All sessions will be audiotaped. The audiotape will be transcribed after the interview sessions. During the interview session, 5th grade students will be asked questions about how they read on a computer, and what they do when they do not understand what they are reading. I do not anticipate the risks associated with answering the questions to be greater than any risks that they encounter on a day-to-day basis.

Any information collected in relationship to this study will be kept confidential. The research records will be kept private and will be stored in a locked cabinet in the researcher's office. Only the researcher will have access to the research records.

I will not begin my study until I have approval of my IRB from Indiana University of Pennsylvania. Your signed consent on your institution's letterhead will be included in my IRB. Following this cover letter, you will find the consent form for your printing and signature. The consent form should be sent to: Melissa Martinez, Bangor Area High School, 187 Five Points Richmond Rd., Bangor, PA 18013.

My ability to conduct and complete this study is dependent on the cooperation of individuals such as you. I want to sincerely thank you for your consideration of my request.

Sincerely,

Melissa J. Martinez

Appendix F

Informed Consent-Northampton Area School District

NORTHAMPTON AREA SCHOOL DISTRICT
HOME OF THE KONKRETE KIDS
Joseph S. Kovalchik, Superintendent
District Administration Office
2014 Laubach Avenue
Northampton, PA 18067
Phone: 610-262-7811 Fax: 610-262-1150

February 10, 2016

Ms. Melissa J. Martinez
Bangor Area School District
187 Five Points Richmond Road
Bangor, PA 18013

Dear Ms. Martinez:

I am in receipt of your letter dated February 5, 2016, requesting permission to conduct research at Lehigh Elementary School in conjunction with your doctoral degree. I am pleased to inform you that I have approved your request and am enclosing the signed consent form.

Please contact Lori Kuhns to arrange for proper notification and consent from the involved parents. If you have any questions or require any additional information, please do not hesitate to contact me.

Thank you for your interest in the Northampton Area School District.

Sincerely,

Joseph S. Kovalchik
Superintendent of Schools

Enclosure

Cc: Dr. Lori Kuhns, Principal, Lehigh Elementary School

Indiana University of Pennsylvania
www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

February 5, 2016

Joseph Kovalchik
District Administration Building
2014 Laubach Ave.
Northampton, PA 18067

Dear Superintendent Kovalchik:

I would greatly value the opportunity to conduct my study within your school district, specifically Lehigh Elementary, and would appreciate your willingness to support my research. My hope is to involve approximately thirty students within my study. Research will be compiled through student interviews. If you have specific questions regarding this study and request, please do not hesitate to contact me at the number or email address found below. Thank you so much for your consideration of this request.

Sincerely,

Melissa J. Martinez

Teacher, martinem@bangorsd.org
(610) 599-7011, Ext. 1106
Bangor Area School District
Educational Leadership Doctoral Student
East Stroudsburg University of Pennsylvania
Indiana University of Pennsylvania

AGREEMENT: Permission is granted to participate in the research study described above.

Signature of Superintendent: _____ **Date**: 2/10/16

Signature of Researcher: _____ **Date**: 2/18/16

Appendix G

Cover Letter to Principal's Consent- Lehigh Elementary School

Indiana University of Pennsylvania

www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

February 19, 2016
Northampton Area School District
Lehigh Elementary School
800 Blue Mountain Drive
Walnutport, PA 18088

Dear Dr. Kuhns:
This letter is being written to request your permission to conduct research at Lehigh Elementary School.

This qualitative research study is an exploration of how fifth grade students make meaning of digital expository text. The study seeks to reveal what reading strategies the students use while reading text on a computer in an online environment. Your school will be the only school participating in the study pending your approval.

I am requesting your permission to interview 30 randomly selected fifth grade students at Lehigh Elementary School to determine how fifth grade students make meaning of digital expository text. The study seeks to reveal what reading strategies/processes that 5th grade students use when reading text on a computer. Lehigh Elementary will be the only school participating in the study pending your approval.

This study is being done in partial fulfillment of a doctoral degree in Administration and Leadership offered by Indiana University of Pennsylvania in collaboration with East Stroudsburg University. By granting me permission to interview a select group of students, you will be contributing to the body of knowledge surrounding what reading strategies fifth grade students use while reading expository text on a computer.

The researcher will work alongside of you as Lehigh Elementary School's building principal regarding the random selection of students. The researcher will send parent consent forms via U.S. Mail and will indicate to the parents of the students that their

child's participation is completely voluntary. Your assistance will be greatly appreciated in reserving a location for the interview sessions.
Each child will be involved in an interview session lasting approximately 15-20 minutes. All sessions will be audiotaped and the audiotape will be transcribed after the interview session. During the interview session, 5th grade students will be asked questions about how they read on a computer, and what they do when they do not understand what they are reading. I do not anticipate the risks associated with answering the questions to be greater than any risks that they encounter on a day-to-day basis.
Any information collected in relationship to this study will be kept confidential. The research records will be kept private and will be stored in a locked cabinet in the researcher's classroom. Only the researcher will have access to the research records.

I will not begin my study until I have approval of my IRB from Indiana University of Pennsylvania. Your signed consent on your institution's letterhead will be included in my IRB. Following this cover letter, you will find the consent form for your printing and signature. The consent form should be sent to: Melissa Martinez, Bangor Area High School, 187 Five Points Richmond Rd., Bangor, PA 18013.

My ability to conduct and complete this study is dependent on the cooperation of individuals such as you. I want to sincerely thank you for your consideration of my request.

Sincerely,

Melissa J. Martinez
Teacher, martinem@bangorsd.org
(610)599-7011, Ext. 1106
Bangor Area School District
Educational Leadership Doctoral Student
East Stroudsburg University of Pennsylvania
Indiana University of Pennsylvania

Appendix H

Informed Consent- Lehigh Elementary School

Lehigh Elementary School
800 Blue Mountain Drive
Walnutport, PA 18088
Phone 610-767-1191 Fax 610-767-4731
Dr. Lori Kuhns, Principal

To: Melissa Martinez, Doctoral Student

RE: Research Study Consent

From: Dr. Lori Kuhns, Principal

Date: March 4, 2016

AGREEMENT: Permission is granted to participate in the research study described above.

Signature of Principal,
Lehigh Elementary School: _____ **Date:** 3/16/16

Signature of Researcher:
_____ **Date:** 3/5/16

Appendix I

Informed Consent- Parent- Study

Indiana University of Pennsylvania

www.iup.edu

Department of Professional Studies
In Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

To: Parents of a fifth grade child at Lehigh Elementary School

Subject: Reading Research to learn more about the process that 5th graders use when reading several paragraphs on the computer.

As parents, I am sure that you are very much aware of how important reading skills are in order to help your child succeed not only academically, but also in their future endeavors.

If you consent, your child will read several paragraphs on the computer and then be asked the following questions:

1. Describe what helps you to understand the material that you are reading.

2. When you read material on the computer, describe the process you use to be able to understand what you were reading.

3. Tell me what you do when you read something that is hard to understand.

4. Is it easier to comprehend using a book or a computer, or are they both about the same?

5. Was there anything that you saw in the text that helped you better understand what you were reading?

Please note that sometimes a follow-up question might be asked such as: "Tell me more about that" or "that is a really interesting approach, tell me more about that."

Your child's name will remain anonymous and anything s/he says will be kept confidential. The research records will be kept private and will be stored in a locked

cabinet in the researcher's office. The researcher will be the only individual to have access to the research records. Neither your child's teacher, nor the school district will have access to the interview material.

Your child's participation in this study is completely voluntary. If you decide to allow your child to participate, your child is free to withdraw at any time by leaving the interview session.

This project has been approved by the Indiana University of Pennsylvania's Institutional Review Board for the Protection of Human Subjects. If you have any questions about the study please ask them now or contact Melissa Martinez by email at mmartine10@live.esu.edu. You may also contact her faculty advisor, Dr. Douglas Lare by email at dlare@po-box.esu.edu. If you have any questions or concerns regarding your rights as a participant in this study, you may contact the Indiana University of Pennsylvania's Institutional Review Board (IRB) by email at irb-research@iup.edu or by phone at 724.357.7730.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO HAVE YOUR CHILD PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Parent signature: _____Date: _____

Participant name
(printed):_____Date:_____

Principal Researcher
signature:_____ Date: _____

Principal Researcher
(printed): _____ Date:_____

Appendix J

Interview Questions

1. Describe what helps you to understand the material that you are reading.

2. When you read material on the computer, describe the process you use to be able to understand what you were reading.

3. Tell me what you do when you read something that is hard to understand.

4. Is it easier to comprehend using a book or a computer, or are they both about the same?

5. Was there anything that you saw in the text that helped you better understand what you were reading? Was there anything that you saw in the text that distracted you?