

DIGITAL LITERACIES: A CASE STUDY EXPLORING THE READING
PROCESSES OF GRADE SIX STUDENTS IN A LANGUAGE ARTS CLASSROOM
ENGAGING WITH INFORMATIONAL TEXTS ONLINE

by

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ABSTRACT

ALONDA LESHA WYLIE. Digital Literacies: A Case Study Exploring the Reading Processes of Grade Six Students in a Language Arts Classroom Engaging with Informational Texts Online. (Under the direction of DR. BRIAN KISSEL)

Researchers suggest that youth involvement with digital texts and online media is essential to developing critical readers and writers in the twenty-first century (Alvermann, 2008; Buckingham, 2003; Doering et al., 2007; Sperling & DiPardo, 2008; Stone, 2007; West, 2008). The phenomenon of literacy is changing rapidly and creating a paradigm shift from traditional literacies to 21st century multiliteracies that require students to communicate through technologies and multimedia texts. “Although literacy has been commonly defined as the ability to read and write, we now live in an age of multiple literacies” (McLaughlin & DeVoogd, 2011, p. 278). Particularly, digital literacies propose a world of many opportunities to engage in technologies, apps, social media, and videos to explore, learn and connect with other people, mainly children and adolescents (Rowell, Jennifer & Morrell, Ernest & Alvermann, 2017). Internet technologies have rapidly changed the face of reading and writing, as well as, how readers and writers engage with texts and share ideas in many formats (Lankshear & Knobel, 2011; Leander, Phillips, & Taylor, 2010). Reading instruction and literacy instruction are constantly changing and developing new definitions as new technologies require new literacies (Coiro, Knobel, Lanshear, & Leu, 2008). Most importantly, these new literacies are evolving as rapidly as new ways of communicating and locating information on the Internet. Literacy practices are being redefined daily and having the ability to effectively communicate in these new electronic spaces have implications on

language development and the perceptions of the roles of technology (Lankshear & Knobel, 2011). Unfortunately, today, there are many classrooms that continue to lack sufficient access to technology and clear understanding how to integrate technology (Hutchison & Reinking, 2011). The purpose of this qualitative study was to explore students' reading strategies and engagement with online informational texts, and how their reading practices affect reading comprehension.

Using a qualitative single-case study design, participants were six sixth-grade students (three girls and three boys) with varied reading levels and Internet reading experiences from a class of 26 students in a middle school in eastern United States. Data was collected through individual think-aloud interviews with the researcher and the opportunity to complete three different Internet tasks. Findings suggest students in this study use reading practices and strategies similar and different to traditional reading and the Internet presents a need for a set of more complex skills to read, navigate, and comprehend texts online. The implications of the research, recommendations for educational stakeholders, and recommendations for future research are discussed.

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DEDICATION

This dissertation is dedicated to my God son, Malcolm Brown. I am extremely proud of how you continue to strive for success beyond your mom's passing. You represent great strength and endurance and I know your mom would be proud of you. Keep the faith.

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CHAPTER ONE: INTRODUCTION

New Literacies

Internet technologies have rapidly changed the face of reading and writing, as well as, how readers and writers engage with texts and share ideas in many formats (Lankshear & Knobel, 2011; Leander, Phillips, & Taylor, 2010). The changes that are happening to literacy have been noted by many in our field (Alvermann, 2008; Coiro, Knobel, Lankshear, & Leu, 2008; Leu, 2007; McKenna, Labbo, Kieffer, & Reinking, 2006). Research in literacy instruction points to the fact that traditional definitions of reading, writing, and communication, and traditional definitions of best practice instruction (book and other print media), are inadequate in meeting the demands of 21st century skills (Beach & O'Brien, 2008, Callow, 2008; Grisham & Wolsley, 2009; Jolls, 2008; Leu et al., 2008; Merchant, 2008). In 2010, The National Education Technology Plan (NETP) emphasized a need for integration of 21st century skills across all grade levels. As more schools integrate technology into the curriculum, students need new literacy skills in preparation for an increasingly digital society. Leu, Kinzer, Coiro and Cammack (2004) categorized these new literacies in terms of five functions:

1. Identifying important questions;
2. Locating information;
3. Critically evaluating the usefulness of information;
4. Synthesizing information to answer questions;
5. Communicating answers to others.

New literacy skills require students to engage in productive learning situations, critically think about real world problems and concerns, and construct new knowledge as

they read print and non-print text (Cramer, 2007). In the age of new literacies, students must be able to interpret and question what they read and be able to create oral, visual, audio, gestural, tactile, and spatial patterns of meaning that extends beyond the traditional reading, writing, listening, and speaking areas of learning (Kalantzis & Cope, 2012, p. 2).

On a daily basis, technology plays an increasing role in our lives, requiring skills that will support engagement in multiple and dynamic literacies that include online reading and collaboration. Furthermore, reading on the Internet, whether searching Google or other websites, requires readers to engage with a different kind of text than traditional paper-based texts. Different processes of reading require different teaching practices. Researchers (Coiro, 2003; RAND Reading Study Group, 2002) imply that we cannot expect all students to be prepared to read and comprehend effectively on the Internet unless there is scientific data to demonstrate what skills are needed, how to assess them, and the best way to teach them.

Teaching expectations have changed because of online literacy, mostly impacted by the shifts noted in Common Core State Standards (CCSS) and how we view education. Former U.S. Secretary of Education Duncan (2011) explains that teachers are experiencing a technological revolution and there must be a change in the way they teach. Additionally, he suggests, teachers work with colleagues to overcome barriers that will prevent student access to technology resources. Teaching practices related to online reading must emerge from a teacher's knowledge of how young children process online reading texts.

To help us better understand how to teach students to read on the Internet, several researchers have modified a familiar approach, known as reciprocal teaching practices (a

multiple-strategy instructional approach), to assist students in reading online with an alternative approach known as Internet Reciprocal Teaching or IRT (Kingsley & Tancock, 2014; Leu et al., 2008; Huang & Yang, 2015). In concert with IRT is Internet Guided Reading, which blends offline reading with online reading comprehension instruction providing strategies for students to build connections between print and Internet texts (Doyle, 2016). The guided reading approach focuses on the process of reading and helps students to grow as readers as they encounter difficult texts when reading on the Internet (Fountas & Pinnell, 2012).

Researchers have conducted significant work relating to online literacy (Coiro, 2009; Leu, 2000; McNabb, 2006; Snyder & Beavis, 2004). Some scholars in the field suggest that digital literacy consists of different cognitive thinking processes and a set of practices managed by multimodality. The New London Group (1996) offered the conceptual framework of multimodality to share how learners' approach available designs in their understanding of texts. Kress (1997) defines multimodality as an understanding of different approaches of communication (visual, acoustic, spatial) working in unity. In addition, multimodality is defined as a set of different modes of communication that each offer particular meanings that another might not offer (Roswell & Burke, 2009). These researchers studied how digital reading practices rely on ideas of multimodality and design to better understand digital text content. Additionally, a multiliteracies framework provides a way for educators to rethink conceptions of language, such as linguistic modes, visual modes, and acoustic modes designed to provide a message to the reader (Roswell & Burke, 2009).

Online reading materials are widely read by young readers, so there is a need for students to grasp a deeper understanding and critical awareness of digital texts. Multiliteracies and new literacy theories help educators to understand adolescent reading practices and to appreciate the nuances of digital reading (Kress, 2006). The rapidly evolving nature of literacy presents a significant challenge for theory development (Coiro, Knobel, Lankshear, & Leu, 2008; Tierney, 2009). Newly, a dual-level theory of New Literacies has been suggested to address this issue (Leu, Kinzer, Coiro, Castek, & Henry, 2013). A dual-level theory of New Literacies conceptualizes new literacies into two categories: uppercase (New Literacies) and lowercase (new literacies). Lowercase literacies focus research on areas of new technologies, such as new literacy studies (Street, 2005), or online literacies focused on different learning stages (e.g., Alvermann, Hutchins, & McDevitt, 2012; Marsh, 2011). This study focuses on the new literacies of online research and reading comprehension (Kingsley & Tancock, 2014; Leu & Kinzer, 1987) which is one focus of lowercase theories of new literacies.

Borsheim, Merritt, and Reed (2008) contend that teachers with a multiliteracies pedagogy are more likely to prepare students for 21st century skills. These researchers claim that incorporating multiliteracies into the curriculum helps in three ways: students experience new knowledge through “authentic experiences” can strengthen traditional curriculum objectives,” and will extend further than those objectives to push the development of multiliteracies (p. 88).

From explicit technology requirements in Common Core Standards to sets of skills necessary for completion of standards-based tasks and assessment questions, digital literacy skills are at the core of the Core. As reported in the most recent NAEP results,

“[Technology] is becoming more the norm than the exception in our Nation’s schools and certainly the way [to] communicate in college and the workplace” (Fleming, 2012). New assessments systems, such as the Partnership for Assessment of Readiness for College and Careers (PARCC), align with Common Core State Standards and require students to engage with digital texts, evaluate information from various sources, and produce a culminating product (PARCC, 2013). Common Core provides two fundamental advancements, and they are an emphasis on high-level thinking and acquisition of digital literacy skills (Leu, Forzani, et al, 2013).

Schools and teachers must be mindful of the three components of digital literacy, “reading digital text, writing digital text, and developing the technical skills necessary to consume and produce these texts” (Wood, 2012). Reading digital text refers to scanning the text on a site to preview headings, images, phrases, and sentences to evaluate relevancy; managing the toggle bars to scroll down to read the entire piece, not just what they can see on the screen; highlighting and copying phrases and sentences to be incorporated into writing using correct citation. Ohler (2009) affirms, “being literate also means being able to integrate...media forms into a single narrative or ‘media collage,’ such as a web page, blog or digital story. That is, students need to be able to use new media collectively as well as individually”.

Nevertheless, prior studies of online reading practices have mainly focused on adolescents and young adults and less on younger learners (Coiro & Dobler, 2007; Coiro et al., 2011; Cho, 2011; Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012; Zhang & Duke, 2008). Additionally, previous research has focused on the cognitive

processes students use when engaging in online reading (Castek, 2008; Dwyer, 2010; Kingsley, 2011; Steffens, 2012).

Statement of the Problem

Success in school, the workplace, and throughout one's community depends on the ability to comprehend informational material; however, many adults and children grapple with comprehending informational texts (Duke, 2016). The ability to comprehend information during online research and learning is significant to knowledge-based societies (Goldman et al., 2012, PIAAC Expert Group on Problem Solving in Technology-Rich Environments, 2009). Recent studies have shown that online research is not opposite to offline reading comprehension (Afflerbach & Cho, 2010; Coiro & Dobler, 2007, Leu et al., 2007). Coiro and Dobler (2007) found that online research and comprehension consisted of offline reading comprehension skills; however, online tasks are more complex and require additional skills. Additionally, Coiro (2011) studied offline reading and prior knowledge scores using a regression model and found evidence of increased variance by having known the students' abilities in online research and reading comprehension.

The Internet continuously evolves daily, generating new technologies to store information and increase ways of communication that require new literacies (Baker, 2010; Lankshear & Knobel, 2006). Therefore, as new technologies evolve, the focus of instruction must center around assisting students to become critical consumers and creative innovators of information in these new online contexts (Alvermann, 2008; Fabos & Fabos, 2004; Stevens & Bean, 2007), developing the ability to evaluate the accuracy and relevancy created for a variety of audiences. Emerging standards require online

readers to be socially aware, productive, and collaborative with members of a networked global community (Common Core State Standards Initiative, 2010; International Reading Association & National Council of Teachers of English, 2010). As researchers and educators yearn to learn more about the integration of technology in the classroom, the research in literacy and technology is evolving gradually (Coiro et al., 2008; McKenna et al., 2006).

Among many professional organizations, the International Reading Association IRA, renamed the International Literacy Association (ILA), duly notes current perspectives of literacy, stating that new literacies: 1) demand new social practices, skills, strategies, and dispositions, 2) are central to participation in global society, 3) change rapidly, and 4) are multiple, multimodal, and multifaceted (International Reading Association, 2009). Similarly, professionals from the National Council for Teachers of English (NCTE), constructed a position statement proposing that engaging in the 21st century includes: 1) proficiency with tools of technology, 2) global participation, 3) ability to “manage, analyze, and synthesize multiple streams of simultaneous information,” 4) the ability to “create, critique, analyze and evaluate multimedia texts,” and 5) the willingness to “attend to ethical responsibilities required” by complex environments (National Council of Teachers of English, 2013).

The International Reading Association (2010), today known as the International Literacy Association (ILA), proposes that “traditional definitions of reading, writing, and viewing, and traditional definitions of best practice instruction—derived from a long tradition of book and other print media—will be insufficient.” Classrooms are not as responsive to technology integration, due to many reasons, such as teachers not feeling

confident or knowing exactly how to integrate technology (Hutchinson & Reinking, 2011). Therefore, having a better understanding of how teachers merge technology in the literacy classroom will help build support, such as providing hands-on experiences with technology (Jaipal-Jamani & Figg, 2015). Many studies have acknowledged teachers' attitudes and beliefs as significant factors that may discourage the use of technology in the classroom (Zoch, Myers, & Belcher, 2016).

For several decades, researchers have engaged in discourse concerning the shift in literate practices towards reading and writing alternative texts (RAND Reading Study Group, 2002, p. xiv) and the difficulties that electronic texts present through hyperlinks and hypermedia that require skills beyond traditional reading practices (p. 14). Students need to know how to use hypertext and navigate from screen to screen online, but McEneaney (2006) found that there remains a lack of understanding how the theories and practices of literacy, instruction, and learning are affecting how adults and students interact with online texts. Reading has been ever-changing from page to screen (Goldman et al., 2012; Hartman, Morsink, & Zheng, 2010), but studies of reading achievement gaps have mostly focused on differences in offline reading (Reardon & Valentino, 2012; Reardon & Galindo, 2009). Beyond having the skills to search and locate information on the Internet, students must be able to undertake what they read. Therefore, teachers are more apt to integrate technology into instruction if the curriculum presents technology as an integral component, not as separate (Hutchison & Reinking, 2011), and if they believe that technology is important for teaching (Miranda & Russell, 2012).

Personal Experience

Since leaving the classroom to become a literacy coach, I have been interested in digital literacy. Specifically, I have been interested in knowing how students read informational text within online contexts. I have taught, observed, and assessed sixth-grade students as they read informational texts in print. I taught various strategies that assist my students to read and comprehend many genres including fiction, informational genres, poetry, and persuasive texts. I am aware of the various reading strategies students use to navigate printed texts; however, I've been less sure about how these same students navigate online informational texts. In fact, I have watched students struggle as they try to navigate this terrain. While reading informational texts online, students struggle to: 1) gain a deeper understanding of what they read, 2) understand the meaning of certain words, sentences and phrases, and 3) transfer meanings across multiple texts in order to synthesize and evaluate the information.

In my experience, when students read informational texts on the Internet, there are variables that students face in order to make sense of what they read. A couple of variables I have witnessed are, but not limited to, students struggle with navigating the Internet to find and evaluate information they find about a specific topic and students lack the background knowledge to make connections with new information. I have observed students reading online using strategies, such as, rereading to find the main idea, using context clues to determine the meaning of unfamiliar words, making text-to-self connections, and making inferences. And, when reading paper-based materials, students can use tools such as highlighters, sticky notes, and marking utensils to highlight, annotate, summarize, and chunk information. And while many of these same tools are

available online in Adobe or other PDF-software programs, students are less able to do so when confronted with online texts.

Because of my personal interest in this line of inquiry, and my need to find answers to better serve middle school students and teachers, I conducted this study to examine if reading (and comprehending) online informational texts requires the same processes we employ when reading printed texts; or, does reading online informational texts require different reading strategies for readers.

Purpose of the Study

Researchers have noted the importance of teachers incorporating digital literacy practices into the daily learning lives of their students (Alvermann, 2006; Buckingham, 2007). Despite the significance of students having exposure and access to informational texts, students read narrative texts at higher levels than informational texts (Best, Floyd, & McNamara, 2008; Dennis, 2013, McNamara, Ozuru & Floyd, 2011; Thompson et al., 2012; Zabruck & Ratner, 1992). Many scholars suggest a need for further research to help educators better comprehend the complexities of reading informational texts on the Internet (Coiro & Dobler, 2007). There exists the need for studies that examine student thinking for constructing meaning during online reading comprehension and that explores the decisions students make when reading texts online. In addition, more studies are needed to inform researchers and educators how to approach online assessments and students' abilities to adapt their traditional reading strategies in the context of an Internet environment.

Few studies have focused on the online cognitive processes as critical elements of reading comprehension. Consequently, the purpose of this study is to explore the

independent reading strategies that students employ when reading online informational texts, choosing search engines and websites and to study students more closely using a think-aloud to describe how readers use those strategies to comprehend what they read.

Research Questions

In this study, I examine critical concerns related to online digital literacy practices in the classroom, students' online reading practices and the overall approach towards multimodal pedagogy, particularly the need to increase the amount of informational text exposure in the literacy classroom. To further explore how informational text is being addressed in a secondary classroom, the following research questions will guide this study:

RQ1: How do sixth graders in an English Language Arts class describe their reading practices when reading informational texts online?

RQ2: In what ways do they engage with informational texts online?

RQ3: In what ways do they comprehend or not comprehend informational texts online?

Theoretical Framework

Considering the many different conceptions surrounding literacy, this study of reading comprehension of online informational texts, was informed by two theoretical perspectives. The first perspective views reading as an active, constructive, meaning-making process (RRSG, 2002; Spivey, 1990). This prior work played a significant role in future lines of research demonstrating that this perspective continues to support the idea that reading comprehension is an active, constructive, meaning-making process (Kintsch & Kintsch, 2005) in which the reader, the text, and the activity are intertwined

(Jetton & Alexander, 2004; Pearson, 2001). According to this perspective, meaning is constructed through the interaction between reader and text within different contexts and reading experiences (Britt, Goldman, & Rouet, 2012; Snow, 2002). Readers are viewed as reflective and effectively using reading strategies to construct meaning (Afflerbach & Cho, 2010; Langer, 2011). Skillful readers use a variety of strategic mental processes to select, organize, connect, and evaluate what they read. Reader characteristics play a role in text comprehension, such as demonstrating the abilities to make inferences, draw connections among various texts supported with prior knowledge, reading with a purpose and ability to self-regulate their use of strategies (Pressley & Afflerbach, 1995). Prior qualitative findings suggest comprehending printed text versus online text requires new and traditional reading strategies to successfully understand text read online (Afflerbach & Cho, 2008, 2009; Coiro & Dobler, 2007; Coiro, Malloy, & Rogers, 2006).

A second theoretical perspective is that of a new literacies theory (Leu et al., 2009) positioning the nature of literacy as rapidly transforming as new technologies develop (Coiro, Knobel, Lankshear, & Leu, 2008). New literacies, as a construct, means many things to many people. Some define new literacies as social practices (Street, 2003) or new Discourses (Gee, 2012) that emerge with new technologies. Others see new literacies as new semiotic or cultural contexts made possible by new technologies (Cope & Kalantzis, 2000; Kress & Krupnick, 2006). Each of these perspectives lends important insights to studies of everyday literacies (and related notions of identity, gender, and positionality) from a more social and linguistic point of view (e.g., Chandler-Olcott & Mahar, 2003; Guzzetti & Gamboa, 2004); consequently, some researchers believe that not enough attention is paid to the equally important issue of how adolescents develop

and demonstrate the literacies needed to read and use online informational texts in formal school and work settings. This study focuses on reading comprehension on the Internet (Coiro & Dobler, 2007) in the classroom setting, which is a critical topic for research of new literacies (e.g., Partnership for 21st Century Skills, 2010). The multitude of complexities of online reading leads towards a theory that additional skills and strategies will be required beyond printed texts (e.g., Afflerbach & Cho, 2009; Hartman et al., 2010; Kingsley, 2011; Kuiper, 2007; Spires & Estes, 2002). The questions I sought to answer focus particularly on school contexts and require students' point of view that includes reading processes as well as social and linguistic perspectives.

The RRSg's interactive view of reading suggests social context and cultural variables are important elements in meaning construction and the perspective of the new literacies frames online reading comprehension as a web-based inquiry process involving skills and strategies for locating, evaluating, synthesizing, and communicating information on the Internet. The present study focuses primarily on the reading processes the reader uses to make meaning of informational texts and seeks to more clearly understand through observation the reading processes students experience during online reading and researching of informational texts.

Significance of Study

This study seeks to fill a gap in the existing literature, which categorizes and interprets the various strategies that students use while locating and reading information online. While many studies have focused on primary learners, college students and adults, very few focus on secondary classroom settings. A more in-depth exploration of students' reading strategies and how they engage with texts in a digital environment will

help educators better assist students when reading online texts. This study can be a valuable contribution to better understanding how students navigate, process and comprehend informational texts online.

Definition of Key Terms

The following section defines relevant terms for the readers' understanding and interpretation of this qualitative study. The definitions reflect how the words will be used in the context of this research study, question(s), and findings.

Digital Literacy: Digital Literacy is the ability to understand and use information in multiple formats from a wide range of sources when presented via computers. Digital Literacy is a myriad of social practices and conceptions of engaging in meaning-making mediated by texts that are produced, received, distributed, and exchanged via digital means to include blogs, video games, text messages, online social networks, discussion forums and more (Gilster, 1997). In this study, sixth grade students read multiple informational texts within different text structures written and designed by various resources.

Informational text: Informational text is “text written with the primary purpose of conveying information about the natural and social world (typically from someone presumed to be more knowledgeable on the subject to some presumed to be less so) and have particular text features to accomplish this purpose” (Duke, 2000a, p. 205). In this study, students read information online and describe their cognitive processes and reading practices and to what extent they are comprehending the material.

Information and Communications Technology (or technologies) (ICT): ICT is an umbrella term that includes any communication device or application which encompasses

television, radio, cell phones, computer network hardware and software, satellite systems, as well as the various services and applications associated with them, such as video conferencing and distance learning. This term is mostly used outside of the United States. In this study, students used the Internet and assigned websites (www.tweentribune.com) and were observed and analyzed.

Multiliteracies: Multiliteracies involves being critically literate and having the ability to analyze texts, identify their origins and authenticity, and understand how they have been constructed in order to perceive their gaps, silences, and biases (Cope & Kalantzis, 2002). A multiliterate person is able to understand and use literacy and literate practices with a range of texts and technologies in a socially, culturally, and linguistically diverse world; they are someone able to participate fully in life as an active and informed citizen (Anstey, 2002). In this study, students read informational text for the purposes of explaining their understandings of the text and the literacy practices they choose to use.

Multimodal: Multimodal literacy focuses on the design and discourse by investigating the contributions of specific semiotic responses (e.g. language, gesture, images) co-deployed across various modalities (visual, aural, somatic), as well as their interaction and integration in constructing a coherent multimodal text (such as advertisements, news reports, and websites) (Jewitt & Kress, 2003). In this study, students interacted with text that had language and images.

Cognitive Interviewing: Cognitive interviewing is the use of a variety of methods to question participants about their thought processes as they answer questions prompted by the researcher to improve the quality of survey questionnaires. Boeije and Willis (2013) establishes grounds for cognitive interviewing to address issues in self-reporting

survey errors. Participants can misunderstand the question, and consequently, over-report or under-report their responses. Additionally, Willis (2005) states “response error is a major impediment to survey data quality, and the design of questionnaires that are sufficiently free of such error is a complex process that requires the use of systematic principles of both question design and empirical evaluation” (2005). Willis’s belief is that survey data lacks quality and does not provide the level of feedback as cognitive interviewing.

Think-aloud: Think-aloud is a procedure in which individuals voice their thoughts during reading. Think-alouds have been used to provide insight to users’ cognition and processing during reading or solving problems. The purpose for using think-alouds is to help students develop the ability to monitor their reading comprehension and employ strategies to assist or facilitate thinking (Baumann, Jones, & Seifert-Kessell, 1993).

Reading practices and habits: Reading practices represent the reading actions and choices participants in this study chose to use as they engaged in reading online. In this study, students used a variety of familiar reading strategies used when reading printed texts. Habits are reading strategies that participants used under their own creation to construct meaning.

Assumptions

As new technologies emerge, we must evaluate their educational value; however, acknowledging the way we assess these technologies is important as it influences the results we report to have found (Oliver, 2011). This study adopts a subjective epistemology, seeking understanding. Researchers contend controlled experimentation is

inappropriate for the complex social realities of educational contexts, where epistemologies and pedagogies are contested (Clegg, 2005; Elliott, 2001; Hammersley, 2007, Oakley, 2001).

The following assumptions are applied in this study:

1. The participants are reflective in their thinking.
2. The teachers are committed to making instructional changes in their classrooms that reflect what research says about online literacy learning.
3. The participants honestly shared and communicated their thoughts.

Leedy and Ormrod (2010) states, “Assumptions are so basic that, without them, the research problem itself could not exist” (p. 62). Therefore, research methods are not value-free or neutral, but reflect epistemological positions that determine the scope of inquiries and findings.

Limitations

There are a few factors that prove to be limitations to this study. The small sample size is limited to this school site and schools with similar demographics in this district. Think-alouds and other verbal data collections are used as a tool for assessing the use of metacognitive strategies, which have been criticized for many reasons (Bowles, 2010a). Criticisms include: 1) a child’s lack of language and verbal facility to explain complex or complicated mental thoughts or events, 2) the interviewer’s behavior to elicit answers that seem desirable, 3) participants’ inability to remember, therefore, interfering with introspective reports, and 4) the interviewers’ questions during the cognitive process causing disruptive thinking (Jacob & Paris, 1987). However; think-alouds are effective to use with younger children (Dorl, 2007) and older children (Coiro, 2011, Lapp, Fisher,

& Grant, 2008). A recent study conducting think-alouds in a science class with Kindergarteners (Ortlieb & Norris, 2012) found that students who experienced a think-aloud with the teacher outperformed their peers in a control group on reading comprehension scores. The results of this study could be generalizable to educators who (a) teach middle school children informational texts in the classroom, (b) in the state of North Carolina, and (c) teach middle school students in a charter school.

Conclusion

Two factors constrain middle school readers who must read informational texts in order to be college and career ready, as well as knowledge about the world in which they live: access to informational texts in their classroom and strategies on how to process informational texts written in an online environment. Pappas (1991, p. 461) states that a heavy emphasis is placed on narrative prose in the beginning reading programs for young children and that limits their reading experiences with other text forms, possibly posing a “barrier to full access to literacy.” Duthie (1994) builds on that theory that if educators limit students’ experiences with informational text, they are contributing to their future reading deficiencies. Furthermore, the Common Core State Initiative (2016) emphasizes the use of new literacies that engages students in informational text with the use of technology. Preparing students for a digital world requires overt instruction and support in navigating new literacies in the classroom (Kist, 2013; Hsu Wang, & Runco, 2013; Larson, 2009).

Having the skills and strategies to comprehend and evaluate information on the Internet is essential to students’ success in a digital age. This is why an examination of these skills and strategies is imperative.

In this chapter, I established the importance of this qualitative study. I introduced Internet technologies and their significance of ICTs in the role they play in students' learning process. I then examined the need for a new literacies approach in the classroom to understand, support, and assist students in a digital environment (Kress, 2006). Specifically, I looked at how new literacies affect students who are reading informational texts within digital domains. After posing three key research questions that guide this qualitative research, I defined key terms that are important for readers of this study. I conclude this section by noting limitations and delimitations. In the next chapter, I provide a thorough review of the literature so that my study is situated within a broader research context.

CHAPTER TWO: REVIEW OF THE LITERATURE

Overview

The purpose of this study is to explore how sixth grade students engage with informational texts in an online environment. In this chapter, I provide an examination of research surrounding multiliteracies and the emergence of the new literacies. Next, I discuss the literature of the new literacies (technology and literacy) and online reading strategies students use to increase their knowledge and comprehension of informational texts. Within this review of the new literacies, there are two theoretical frameworks that guided my study:

This review of the literature addresses three key areas of literacy: reading processes, informational texts and online technologies. This segment focuses on the reading practices and strategies students use to comprehend traditional print texts. Next, the literature focuses on a need for providing students with more opportunities to engage in reading informational texts in a digital environment.

What are the Multiliteracies?

A Pedagogy of Multiliteracies

Multiliteracies is a term coined by the New London Group in the mid-1990s and is an approach to literacy theory and pedagogy. This approach connects two key ideas of literacy: linguistic diversity and multimodal forms of linguistic expression and representation. The concept of multiliteracies represents a plethora of terms related to literacy and the different types of literacy represented in the digital environment (Knobel & Lankshear, 2007; Lankshear & Knobel, 2008; Martin, 2006). Multiliteracy, first proposed by Kress and Jewitt (2003), is about understanding the different ways of

knowledge representations and meaning making. Digital technology has changed the way we communicate which demands a new relationship between literacy and technology. Technology allows people to communicate via text, photographs, videos, and other multimedia devices. We participate in gaming in a virtual environment. Social changes are side-by-side with technologies and create a new playing field for the way we communicate (Carrington, 2005). Technologies, such as Wikis, Twitter, blogs, Facebook, YouTube, Flickr, Myspace, and others allow us to obtain information and communicate online instantaneously. Many terms describe changes in literacy within new modes of communication such as visual literacy, new literacies, digital literacies, multimodality, and multiliteracies.

Researchers have realized that the term literacy cannot remain a single term, as the concept of multiliteracies has gained a broader acceptance in a digital and multimodal context (Selber, 2010). Multiliteracies consist of electronic literacies, technoliteracies, digital literacies, visual literacies, and print-based literacies (Kress & Van Leeuwen, 2001). Literacy has changed the way students communicate from isolated linguistic skills to multimodal engagement (Hill, 2010). It is important to understand the term literacy to appreciate the impact of these changes. Traditionally, literacy meant “the ability to read and write; a synthesis of language, context, and thinking that shapes meaning” (Winch, Ross Johnston, Marsh, Ljungdahl & Holliday, 2011, p. 697). This definition represents a linear view of “text” simply reading left to right (Cope & Kalantzis, 2000; Walsh, 2010). In contrast, the term multiliteracies takes into consideration how literacy evolved by “social, cultural, and technological change” (Anstey & Bull, 2006, p. 23).

The New London Group (1996) defended the need for multiliteracies pedagogy that includes four components (Figure 1). First, situated practice focuses on making meaning in specific contexts. Second, overt instruction forms a clear meta-language that supports active interventions that builds student learning using a scaffolding process. Third, critical framing extends our knowledge of situated practice and overt instruction creating the social context and a purpose for students to become meaning makers (transformed practice).

Multiliteracies Model		Learning by Design	
Situated Practice	The immersion in experience and the utilisation of available Designs of meaning.	Experiencing	<ul style="list-style-type: none"> • <i>the known</i> – learners reflect on their own familiar experiences, interests and perspectives. • <i>the new</i> – learners observe or take part in something that is unfamiliar; they are immersed in new situations or contents.
Over Instruction	The systematic, analytic and conscious understanding of Designs of meaning and Design processes.	Conceptualising	<ul style="list-style-type: none"> • <i>by naming</i> – learners group things into categories, apply classifying terms, and define these terms. • <i>with theory</i> – learners make generalisations using concepts, and connect terms in concept maps or theories.
Critical Framing	Interpreting the social and cultural contexts, where students critically view their study topic in relation to its context.	Analysing	<ul style="list-style-type: none"> • <i>functionally</i> – learners analyse logical connections, cause and effect, structure and function. • <i>critically</i> – learners evaluate their own and other people's perspectives, interests and motives.
Transformed Practice	The transfer in meaning-making practice, which puts the transformed meaning to work in other contexts or cultural sites.	Applying	<ul style="list-style-type: none"> • <i>appropriately</i> – learners apply new learning to real world situations and test their validity. • <i>creatively</i> – learners make an intervention in the world which is innovative and creative, or transfer their learning to a different context.
Adapted from Kalantzis and Cope (2000) and New Learning Online (n.d).			

Figure 1: Adapted from Kalantzis and Cope (2000) and New Learning Online (n.d).

Multiliteracy skills and knowledge are fundamental to literacy development (Blanchard & Farstrup 2011; Cooper et al., 2013; Reid & Comber, 2004; Walsh, 2010).

Multiliteracies develop a range of knowledge and skills to include the ability to:

- use technology and software to create, store, retrieve, and publish multimodal text (Cooper et al., 2013; New London Group, 1996; Winch et al., 2011);
- read, understand, analyze, construct, research, and communicate through multimodal, non-linear texts (Birr Moje, Peyton Young, Readence & Moore, 2000; Cooper et al., 2013; Winch et al., 2011);
- use critical literacy skills to determine the purpose, audience, credibility, and reliability of texts created (Anstey & Bull, 2006; Cooper et al., 2013; Walsh 2010); and
- write for an audience (Walsh, 2010).

Cope and the Learning by Design Project Groups (2005) describes teachers as the designer of learning opportunities and all other aspects of teaching and learning in the classroom to include technology. Designing for situated practice draws on what students know, uses aligned text, has activities related to technology representing multimodal and multimedia texts, and students negotiate/construct meanings of multimodal text. In designing for overt instruction and critical framing in classroom discourse, students clarify written language and meta-language through: (1) the message of the text, (2) the techniques used to gain readers, (3) the layout of the text, and (4) the assumptions of the author (Tan et al., 2010). Designing for transformed practice, students do project work across the curriculum.

The following are components of multiliteracies: situated practice which integrates primary knowledge, overt instruction where learning processes are systematic, critical framing where students learn how to question diverse perceptions, and

transformed action where students are taught to take what they have learned and solve real-life problems (Newman, 2002). More specifically, situated practice involves motivated learners discussing and sharing thoughts, connecting with primary culture/language, engaging in classroom experiences in real life situations, and building a community of learners using online communication. Teachers can use tools such as: Facebook, Twitter, mobile devices, Wikis, blogs, making movie trailers, music videos, etc. (Knobel & Lankshear, 2008). When learners engage in critical framing, they demonstrate creativity by observing, interpreting, and negotiating. Application of critical framing allows students to ask “why” (Egbert, 2007) and students learn to respect different perspectives (conflicting points of view).

During overt instruction, teachers can facilitate reflective practices with their students by helping students examine what, why, and how classroom practices enhance their learning (Alexander, 2008). Students understand various modes of learning. Teachers can encourage students to create concept maps to demonstrate what students have learned using a technology-integrated platform (New London Group, 1996).

During transformed practice, students and teachers are engaged in reciprocal conversations (cultural exchanges). Teachers engage students in meaningful learning activities, such as asking students to collaborate to design a movie, which can involve storyboarding, digital photography using Clip Movie software. Further explaining how teachers incorporate technology into their practice, Hill (2007) studied how literacy in the early years has evolved to incorporate technology and multimodal texts in young children’s literacy practices. Hill found that technology plays a large part of children’s

lives at school and at home; therefore, it is imperative that educators link the children's prior knowledge of technology in teaching digital literacies in the 21st century classroom. Teachers use technology as an aide to transform information into knowledge using a technique that combines text with graphics, arts, and music to help students comprehend (Ajayi, 2013). This approach allows teachers to be creative in the literacy classroom by integrating the Internet, music, art, photos and an array of other resources (Cope & Kalantzis, 2000; Walsh, 2010).

Digital Literacy

The concept of digital literacy has developed over the last few decades, once referred to as “information literacy” (Lankshear & Knobel, 2004). Since the field is new, there are varying, yet similar, definitions of Digital Literacy across the world. The European Commission (2008) has defined literacy as, “the skills required to achieve digital competence, the confident and critical use of ICT for work, leisure, learning and communication.” The definition that Leu (2004) follows is grounded in schools, the Internet, learning, and reading comprehension. The Literacy Panel (2002), also defines digital (ICT) literacy as the use of digital technology, communication tools, and networks to access, manage, integrate, and analyze information using computers and the Internet. Hatlevik and Christophersen (2013) referred to “digital competence” as having the ability to process digital information and the ability to produce digital information. Digital literacy is very broad, encompassing various aspects following a continuum from the acquisition of instrumental skills building to competence and cognitive skills (Calvani, Fini, Ranieri, & Picci, 2012).

Technology is increasingly saturating all aspects of lives, demanding our schools to better prepare students for 21st century learning (Partnership for 21st Century Skills, 2004). The practice of reading online and gaining information from sources on the Internet has increased tremendously (Friedman, 2011; International Reading Association, 2002; Partnership for 21st Century Skills, 2004).

The nature of literacy has evolved, and it is critical for teachers to understand the skills and knowledge students need when engaging with online texts. Bennett (2008) contends that educators' knowledge of information and communication technology (ICT) is far from clear. The Millennial Generation (Howe & Strauss, 2000) are individuals who reached adulthood around the turn of the 21st century. Generation M are children who spend unsurmountable amounts of time engaged in television, media, video games and the Internet (Roberts et al., 2005). Prensky (2009) views students as fluent in the digital language of computers and the Web. Junco (2012) asserts digital natives engage in useful information and communication technologies (ICT) tools, demonstrating abilities in assessing, creating, and sharing text and videos leisurely. Digital literacy derived from the increased development in computers and the Internet, including, the knowledge and skills used in a digital environment.

Emerging research cautions researchers' about how they view students and how they use ICT (Bennett, 2008). For example, Conole et al. (2006) conducted a study surveying United Kingdom undergraduate students and found students used technologies in "integrated," "personalized," "social," and "interactive" ways. These findings suggest "there is a shift in the nature of the basic skills with a transition from lower to higher levels of Bloom's taxonomy necessary to make sense of their complex technologically

enriched learning environment.” Additionally, Burnett (2010) researched the value of incorporating ICT into literacy lessons in elementary school age children. Burnett conducted a small-scale study with four and five-year old children that demonstrated how a computer program (PictoPal – a program designed to support reading and writing using images and texts) motivated children to read and provides valuable findings to those who design educational programs for teachers. The researchers found that children participate in meaningful exchanges that are relevant to their current lives. In contrast, other studies disagree that a shift has occurred in student thinking. For example, Bullen (2008) conducted a study with Canadian students and concluded that the students understood what ICT offers them but lacked the deeper understanding of the technologies.

Research studies of students’ abilities to use technology to think critically on the Internet have found students to be savvy users (Lorenzo & Dziuban, 2006). Furthering this debate, Kvavik’s (2005) survey of 4,374 undergraduate students concluded, “students are skilled with basic office suite applications but tend to know just enough technology functionality to accomplish their work; they have less in-depth application knowledge or problem-solving skills” (p. 76). These studies support the need to learn more about the reading habits of secondary students and the strategies they use to deepen their knowledge as they read information in a digital environment. Hesterman’s (2011) research supports Kvavik’s findings. Using a case study methodology, Hesterman describes two case studies, which demonstrated the notion of implementing multiliteracies pedagogies and ICT into their classroom curriculum in Australian schools. Hesterman found that educators have a very different understanding of what multiliteracies are and what resources need to be used. There are gaps in the literature

that provide the direct experiences of children in middle grades and how they learn and interact with information online and how they use the information to problem solve.

New literacy skills are essential to students' reading practices and reading comprehension and teaching these skills require educators to have a deeper understanding of how to assist children when working with new information in a digital space.

New Literacies

New Literacies mean many things to different people. Some define new literacies as social practices (Street, 2005) or new Discourses (Gee, 2003) that emerge with new technologies. Leu (2000) identifies the new literacies of the internet in terms of the way people read and write within a network of information and communications technologies. As this researcher focuses on how literacy is changing in contemporary work life, he illustrates the stakes for education, stating that members of modern education must be able to: identify key problems and issues at work, access relevant information and critically evaluate it, use the information to solve a problem, and effectively communicate the solution to others. This brings us to the question of "how can educators prepare students within the classroom networks for the increasing demands of the new literacies?" Others see new literacies expanding due to new technologies as living in a new semiotic or cultural context (Cope & Kalantzis, 2000; Kress, 2005).

The Internet has become an important context for teaching and learning (U.S. Department of Education, 2004; Web-based Education Commission, 2000). In 2003, ninety-three percent of K-12 classrooms in the United States had at least one computer connected to the Internet (Kleiner, 2003) and in 1999, 66% of public-school teachers reported using computers or the Internet for instruction during class time (National

Center for Education Statistics, 2000). Electronic texts introduce new supports as well as new challenges that greatly impact an individual's ability to comprehend what he or she reads (Coiro, 2003). Coiro and Dobler (2007) conducted a study using a new literacies theoretical perspective. Their qualitative study explored the cognitive reading comprehension strategies of 11 skilled sixth-grade readers. They designed tasks focused on three aspects of reading comprehension (locating, evaluating, and synthesizing) deemed important for a new literacies perspective in two online reading contexts (how to best develop informational and academic literacies). Their findings suggest that students draw upon their knowledge of the topic and that readers drew from two additional sources of prior knowledge to inform reading decisions to include knowledge of the website structures and search engines.

Research in the attainment of new literacies is expanding fast in ways that can support classroom teachers and students (Coiro, 2012). Enthusiasts predict that the fast-paced technological changes businesses and entertainment are experiencing must also take place in schools. Two arguments arise, one being that the world is changing, and technologies provide enhanced capabilities for educating learners (Collins & Halverson, 2009). Additionally, Coiro explains four emerging areas that have potential to assist how practitioners address the challenges of integrating digital texts and tasks into a literacy curriculum. The four areas mentioned were: 1) basic research that seeks to better understand learner reading skills (strategies, practices and dispositions), 2) research in assessment that addresses reading comprehension online, 3) research in instruction that address ways of teaching online reading across multiple grade levels, and 4) research in professional development that provides support for teachers as they embrace new literacy

ideas. Cooper (2004) argues that failure to integrate and align online reading comprehension to national standards or curricula and assessments has serious consequences for the least advantaged students in the United States. Furthermore, there is minor incentive to integrate new literacies of online reading comprehension because they are not tested.

In an effort to learn more about online literacy practices, Mokhtari, Kymes, and Edwards (2008) conducted an interview with members of the New Literacies Research Lab (Professor Don Leu and his colleagues Lisa Zawilinski, Greg McVerry and Ian O’Byrne at the University of Connecticut). The goal of the interview was first to gain a deeper understanding of the differences and similarities between reading comprehension on the Internet and in print-based reading environment, and second, to study how new literacies of online reading comprehension can be assessed. These researchers pondered if the interviews provided research-based evidence to support something “new” as it relates to online reading comprehension versus offline reading comprehension. However, there is research that suggests that there are differences in the two, and the evidence confirms a complex blend of both offline and new online fundamentals that take place during online reading (Coiro, 2011; Coiro & Dobler, 2007).

Informational Texts

Duke (2000) study found that instruction using informational texts is insufficient in first grade classrooms. In addition, Jeong, Gaffney, and Choi (2010) replicated Duke’s study and found that narrative texts appear more frequently in second, third, and fourth grade classrooms. To address the need for more exposure of informational text in the classroom, new policies drive new literacy requirements. The Common Core State

Standards (CCSS; National Governors Association Center for Best Practices [NGA Center] & Council of Chief State School Officers [CCSSO], 2010) requirements support rigor in literacy through higher order thinking skills and the integration of technology (digital literacy skills) placing higher demands on student outcomes in reading comprehension (Leu et al., 2013).

The terms informational texts and nonfiction are interchangeable; however, informational texts are one type of nonfiction (Duke, 2004). Nonfiction text is an all-encompassing term that attempts to convey truth or correct information about the world through biographies, procedural texts, how-to texts and informational texts (Horsey & Maloch, 2013). Primary and secondary children are intrigued with the world around them, which makes informational text an engaging genre of writing for them. Mantzicopoulos and Patrick (2011) says children's literacy development and reading interest levels are encouraged with the use of informational texts. Duke (2000) challenges the amount of nonfiction taught in early grades suggesting that there is more emphasis on narrative texts resulting in young children having limited experiences with other forms of texts. Fortunately, in schools, across the grades, children's exposure to informational text increases. This is significant because Smith (1990) notes 90% of the material that adults read are informational in nature. At fourth grade, students experience a text shift leaning more towards expository text versus narrative text (Chall & Jacobs, 1983). The text shift, changes in text structure, and text features can present challenges to young and intermediate readers, also raising reader expectations (Duke & Roberts, 2010). The Common Core calls for nonfiction for the purpose of preparing students to build knowledge and read and write across all subject areas (Cervetti & Heibert, 2015).

Duke (2004) attests that the workplace and society demand a person's ability to comprehend informational material. This researcher also suggests that teachers help students make sense of informational texts by modeling and explaining how to make sense of what they have read.

Research regarding informational texts has grown extensively mainly focusing on teacher instruction. Some researchers examined teacher strategies for integrating informational texts in their classrooms (Bradley & Donovan, 2010; Gregg & Sekeres, 2006; Maloch, 2008) and others have focused on developing and assessing instructional interventions (Purcell-Gates, Duke, & Martineau, 2007; Williams et al., 2005). However, there is a lack of research regarding how middle school students are engaging and using informational texts in a digital environment from the students' perspective.

In some cases, students have difficulty reading and understanding informational texts online (Applebee, Langer, & Mullis, 1989; Armbruster et al., 1990). Informational texts present new vocabulary and new information making it difficult for students to use their prior knowledge. Traditionally, students are consumers of information rather than provided the opportunities to create meaning during the reading process known as the "transmission model" of reading (Spires & Donley, 1998). The "transmission model" typically requires students to receive information from the author while adding no additional input or questioning; they are just receivers of this information (Smith, 1985; Straw & Sadowy, 1990). When students are not active participants in their own learning, it limits what they learn and supports the argument that students learn from numerous knowledge sources, such as their own personal experiences and prior knowledge (Spiro, 1980; Spivey, 1987, 1990, 1997). Although, texts that convey information about the

natural or social world exists in our daily lives, many adults and children struggle to comprehend informational text (Duke, 2004). Exposure to informational texts benefit children when taught in the primary grades. Increased exposure to informational texts in classrooms compliments the types of texts students are engaging in out of school.

Findings from the National Assessment of Educational Progress (NAEP, 2010) plainly indicate more focus on reading comprehension based on grades 4, 8, and 11 reading assessment performance. There is a need for teachers to increase exposure to informational texts, in the primary grades to improve the reading performance of middle grade students (Shanahan & Shanahan, 2008). A national concern, as supported by the NAEP 2001 Reading Framework, is the need for comprehending informational texts (National Assessment Governing Board, 2010). Though reading comprehension typically improves through fourth grade, student performance plateaus during middle school (Lee, Grigg, & Donahue, 2007) and students become more interested in topics presented in informational texts (Caswell & Duke, 1998; Jobe & Dayton-Sakari, 2002). There is some concern among educators that increasing exposure to informational texts in the classroom may appear to be difficult for students. However, there is no research to support that informational texts will interfere with students learning basic reading skills (Duke, Bennett-Armistead, & Roberts, 2002, 2003).

Children's use of informational text increases as they progress through the grades. By sixth grade, students are exposed to more than 75% of narrative texts (Moss, 2004a, 2004b). Children are exposed to and use informational texts outside of class and the majority of their adult reading will be informational text (Venezsky, 2000). Approximately 96% of the text people read on the Internet is informational text (Kamil &

Lane, 1998). Chall & Snow (1988) suggests that early exposure to informational texts could possibly minimize issues associated with low reading scores beyond fourth grade. Research suggests that teaching at least one comprehension strategy can increase reading comprehension and even teaching multiple strategies can impact students' understanding even more (National Reading Panel, 2000; Pressley, 2001). However, teachers need more support strategies that will help their students comprehend informational texts (Palmer & Stewart, 2003). Hall & Salvey (2007) share a few obstacles that hinder students from comprehending informational texts. These hindrances include: an increase in unfamiliar vocabulary, unknown text structure and increase in headings/subheadings, captions, and graphics (i.e., charts, diagrams, and graphs). Teachers need to have knowledge about the difficulties that students experience with informational texts and provide instruction to address these concerns. Informational texts present new vocabulary and new information, making it hard for students to use their prior knowledge and experiences.

Text structure is another obstacle addressed as a concern for students when they encounter informational texts. Meyer (1985) lists the complexities and varieties of text structures that stump children: description, sequence, problem/solution, cause/effect, and compare/contrast. Even more complicated is when young readers encounter one of these structures in a single selection causing the student to transition back and forth between the different structures (Chambliss & Calfee, 1989). Students seem to benefit from explicit instruction in text structure to better understand what they read (Baumann & Bergeron, 1993; Hall et al., 2005; Williams et al., 2005). Additionally, students need to become more familiar with the various kinds of text and the negative effects of these

differences for reading practices (Symons, MacLachy-Gaudet, Stone, & Reynolds, 2001).

Another obstacle to address with informational text is its unique text features such as headings, subheadings, captions, and graphic organizers (charts, diagrams, graphs). Explicitly teaching children to use text signals and other visuals will improve their comprehension (Lorch & Lorch, 1995; Lorch, Lorch & Inman, 1993; Meyer, 1980, Meyer & Poon, 2001; Millis & Just, 1994).

Reading Processes and Strategies

In traditional print text, active readers use a variety of strategies when they read to understand, such as previewing the text, setting goals, making predictions, monitoring understanding, asking questions, and interpreting the text (Pearson & Duke 2002; Pressley, 2001). According to Keene and Zimmerman (2011), good readers use strategies to learn new concepts, think critically, evaluate what they read, and apply new knowledge to problem solve. They engage in complex processes as they adapt and differentiate strategies in response to a particular text (Pressley & Afflerbach, 1995). Readers make meaning of new texts by making connections with their prior knowledge about the topic (Pearson, Roehler, Dole & Duffy, 1992). According to Pearson et al. (1992), expert readers: (1) activate prior knowledge, (2) ask questions, (3) monitor comprehension, (4) repair comprehension, (5) determine important ideas, (6) synthesize, and (7) make inferences. These skills are better taught as a recursive process as opposed to teaching these reading skills in isolation.

Historical research (Pressley and Afflerbach, 1995) revealed studies that used think-aloud protocols discovered that readers' actions consisted of: meaning-making,

construction, monitoring, and evaluation. More recent research reveals the nature of comprehension as an active, constructive, meaning-making process (Goldman & Snow, 2015; Graesser, 2007; Kintsch & Kintsch, 2005; McNamara, 2012), in which the reader, the text, and the activity play a central role (Alexander & Jetton, 2002; Pearson, 2001).

There is a lack of research providing a deeper understanding about the reading processes adolescents use to read and use online informational texts in and out of school (Coiro & Dobler, 2007). In the past, researchers (Coiro, 2005; Burke, 2009) have struggled with the wide range of possibilities for the Internet and acknowledge the random decision-making middle grade students make when engaging in digital reading practices. A more recent study by Coiro (2011) captured students meaning-making processes by investigating 109 diverse seventh graders (selected from a random sample) using a survey of topic-specific prior knowledge and parallel scenario-based measures of online reading comprehension. Additionally, the researcher collected standardized reading comprehension scores. The Online Reading Comprehension Assessment-Scenario I (ORCA-Scenario I and Scenario II) informed by a new literacies theory of online reading comprehension measured student achievement. Results of the study revealed that topic-specific knowledge played an important role in online reading comprehension among low-level readers of online reading skills; however, prior knowledge did influence average and high level students' reading comprehension who exhibited high-level online reading skills. The findings in this study were contradictory to a larger body of work that suggests prior knowledge plays an important role in the comprehension of print-based and online text. In summary, these findings raise more unanswered questions and we again have only scratched the surface of understanding the

overlapping and complex relationship between students' online and offline reading comprehension abilities. Coiro's study lacks student voice in describing their decision-making processes when reading informational texts online.

Although a few studies have paved the pathway towards understanding the reading practices students use when reading digital text in an online environment, there is a need to explore further about students' online experiences as they locate, read, and make sense of information.

Burke & Roswell (2005, 2006) interviewed students as they worked online to gain insight to their reading practices used in comprehending digital texts. Using large samples with a focus on reading paths, their findings suggest students use interface design to comprehend content, along with thinking of ways to redesign content to improve meanings derived from the text. Additionally, Roswell & Burkes' (2009) study found that students' reading skills contribute to their meaning making process they use to comprehend and engage with texts. Good readers go back and reread the text to clarify misunderstandings and to make connections while keeping information in working memory for cognitive processing (Pressley & Afflerbach, 1995). Less is known about how students comprehend texts within electronic environments such as the Internet (Leu, 2000). As such, few empirical claims support distinct differences among adolescents' reading processes with printed and digital texts. Coiro (2003a) and the International Reading Association (2001) suggested that new strategies are required to successfully locate, use, and comprehend informational texts found on the Internet.

Reading online is a complex process that requires readers to have knowledge about search engines and the organization of websites. Internet texts demand higher

levels of cognitive processes such as inferential reasoning and comprehension monitoring strategies that helps readers stay focused (Biancarosa & Snow, 2004; Coiro, 2003a; Sutherland-Smith, 2002). Digital texts offer a variety of ways for students to engage in the reading process. Some scholars in the field share that digital reading consists of a different set of practices governed by multimodality. Rowsell & Burke (2009) defines multimodality as “an understanding of different modes of communication (visual, acoustic, spatial) working together” (p.106). More recent studies, such as Coiro and Dobler (2007), indicate distinct differences in the quality of strategies readers use online. Adolescent readers vary tremendously in their ability to locate, comprehend, and use information online.

Reading Comprehension

For decades, there has been ongoing research attempting to identify the contributing factors of why many students struggle in reading comprehension on standardized tests and in regular classroom use. Reading plays a significant role in preparing students to be successful in a challenging workforce. Reading comprehension is important because students will need certain skills in their adult life, such as inferring, making connections, and analyzing materials to assist them in making logical decisions (Grimes, 2004). Students need reading experiences that teach them how to gain meaning from what they read, and that reading comprehension goes beyond decoding words (Duke, 2010). The evolution of literacy brought about by the Internet and other forms of ICT have pushed researchers and practitioners to pursue new ways to address the complexities of reading comprehension and writing skills online.

According to the National Assessment of Educational Progress (NAEP) 2000 Reading Report Card, only 37% of African American students had the basic reading skills needed for fourth grade. The problem was more severe as the percent increased to 60% for low-income students in fourth grade who received free or reduced lunch. A child who enters Kindergarten with a low-income background knows about 3,000 words versus children from middle-income families knowing 20,000 words (Hart & Risley, 1995). National reading scores have decreased, and dropout rates have increased due to severe reading deficiencies in young readers (Boiling & Evans, 2008). Minority students, who have reading comprehension concerns, are called struggling or at-risk learners. This data suggest that minority students need more than traditional classroom reading instruction. Readers who struggle need additional support at different stages of their reading abilities (Brownell, 2000). Research indicates that children who are not performing well in reading can make improvements with interventions that focus on reading deficits (Baker & Brown, 1984). According to Snow, Burns and Griffin (1999), how schools are performing to meet the needs of minority students in reading comprehension is a constant battle. Although some schools have implemented many strategies to increase reading scores for all students, minority students continually score the lowest on standardized tests.

Readers face challenges of the complexities of informational texts (Conderman & Hedin, 2015). Prior research confirms that reader and text characteristics play a significant role in reading comprehension (RRSG, 2002). Expert readers engage in a variety of cognitive processes when comprehending printed text such as previewing materials, setting goals, making predictions, questioning text, interpreting text, and

monitoring their understanding (Duke & Pearson, 2002; Pressley, 2001). Proficient readers construct an array of diverse connections within and amongst texts (Perfetti, Landi, & Oakhill, 2005) while incorporating textual clues with background knowledge. Additionally, research supports educators that explicitly teach reading comprehension strategies will increase comprehension development and promote good readers (Duke & Pearson, 2002; Pressley & Afflerbach, 1995).

Focused on teaching and learning, researchers turn their attention to digital literacy practices, and how teachers incorporate traditional and digital literacy into their literacy instruction (Alvermann, 2006; Buckingham, 2007; Cranny-Francis, 2005; Davies, 2006; Knobel & Lankshear, 2006; Thompson, 2008). Research in the attainment of new literacies is expanding fast in ways that can support classroom teachers and students (Coiro, 2012). Enthusiasts predict that the fast-paced technological changes that businesses and entertainment are experiencing must also take place in schools. Two arguments rise from prior research, one is that the world is changing, and technologies provide enhanced capabilities for educating learners (Collins & Halverson, 2009). Cooper (2004) argues that failure to integrate and align online reading comprehension to national standards or curricula and assessments has serious consequences for the least advantaged students in the United States. Teaching reading comprehension, on the Internet, presents challenges to reading comprehension instruction in the classroom (Castek & Reinking, 2006). Furthermore, there is minor incentive to integrate new literacies of online reading comprehension because they are not tested.

Online Technologies

As online consumption and creation increases daily, the more complicated and sophisticated reading becomes in this space. Given what we know about the blend of a variety of online genres, students will encounter a need for different processes when reading various text (Black, 2010). Informational reading is significant for adult readers; therefore, it is imperative that students have the necessary skills and strategies to navigate a plethora of information while comprehending (Smith, 2000; Venezky, 1982).

According to, Mullis, Martin, Gonzalez, and Kennedy (2003), younger readers struggle more with informational text than literary texts. Recent qualitative findings suggest the skills and strategies required to comprehend printed text are interweaved with a set of new, complex skills and strategies to read successfully for understanding on the Internet (Coiro & Dobler, 2007; Coiro, Malloy & Rogers, 2006). Some researchers suggest young readers are not well-equipped with the skills necessary to comprehend the rigorous experiences of search engines (Eagleton & Guinee, 2002), interpret researched information (Henry, 2006), or to evaluate information critically (Fabos, 2008).

Digital Environment. Past research has shown that online reading is a space more designed for the learner (Au, 1997; Kamil, Intrator, & Kim, 2002). The reading path of printed texts is well-known and accessible to navigate; however, this type of text is linear. In contrast, the reading path of digital text requires the reader to construct meaning (Kerns, 2003). Reading context online requires a repertoire of skills such as navigating the text, interpreting visual clues and mastering the distinctions of subtext. Additionally, the design and representation of language within digital texts requires the reader to approach the text with a semiotic understanding (Sullivan, S. A. &

Puntambekar, S., 2015). The Internet itself presents new text formats and new ways to engage with information that can confuse children who are taught strategies to access traditional print. In respect of our students' future, it is necessary for them to be proficient readers in a digital environment (International Reading Association, 2001). Unfortunately, many online environments tend to replicate traditional classroom practices, viewing the teacher as the primary source of information rather than providing support for student engagement (Adams, 2007). A major reason that online education lacks a consistent design to foster student engagement is because educators have limited knowledge about how to create a space for online learning (Bober & Dennen, 2001).

Summary

Chapter two provides background knowledge of prior research of new literacies and the shift from traditional literacy practices to the need for more digital literacy pedagogy. This chapter began with a discussion of how Digital Literacy has evolved over the past decade. Technology plays a significant role in children's lives at home and at school (Hill, 2007); therefore, there is a need to better understand how educators can facilitate digital literacy practices on the Internet. As children's use of informational texts increases across the grades (Maloch & Bomer, 2013), more research is needed to inform educators how to support middle grade students improve their reading performance when engaging in print and non-print texts. This study addresses the need for examining secondary level students and their reading practices used when reading or responding to informational texts in a digital space. Digital Literacy is critical in the classroom due to rapidly changing digital practices. Less is known about how students interact and comprehend information when reading texts online; therefore, this study is

designed to examine students' reading practices in a digital space. There is a real need for rigorous yet *practical* guidance from researchers. Chapter three provides the methodologies that will be used for this qualitative study.

CHAPTER THREE: METHODOLOGY

Overview

College and career successes are highly dependent on a person's ability to read and comprehend informational texts in various formats (i.e., print and online). Duke (2000) and policy makers (NGA & CSSO, 2010) have recognized the significance of exposing and teaching young children how to read and comprehend informational texts, however, sixth graders have not been the major focus of research of informational texts in online contexts (Dodge et al., 2011). It is particularly important to study sixth graders' reading practices when engaging with informational texts online and their levels of comprehension to provide a foundation for future studies, policies, and classroom instructional pedagogy. The purpose of this study was to observe what happens when sixth grade students read and search for informational text online. This study used a qualitative case study design. Case studies seek to describe, explain, and explore individual(s) or multifaceted situations in real-life settings (Yin, 2009). Two approaches guide case study methodology, one by Robert Stake (1995) and the second by Robert Yin (2003, 2006). Both Stake (1995) and Yin (2003) use a constructivist model to guide their approach to case studies. Constructivist view asserts that truth is based on one's perspective and is built on the premise of a social construction of reality (Searle, 1995). The advantage to this approach is the relationship developed between the researcher and the participant(s) while the participant(s) share their stories (Crabtree & Miller, 1999), in addition to describing their views of their reality which aids the researcher in gaining

insight to the participant(s)' actions (Hart, 1993; Lather, 1992). Creswell (2013) defined case study research as a:

...qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observation, interviews, audiovisual material, and documents and reports), and reports a case description and case themes. (p. 97)

The focus of this chapter is to describe the methodology used to shape this study. This chapter includes a descriptive layout of the research design processes, as well as outlining the limitations that typically accompany qualitative methodology. As a result, this chapter is organized in the following manner: (a) research questions, (b) research design overview, (c) underlying philosophical perspective, (d) research site, (e) participant selection, (f) data collection methods, (g) data analysis, (h) ethical considerations, and (i) pilot study.

Research Questions

Merriam (2009) describes qualitative researchers as “being interested in understanding how people interpret their experience, how they construct their worlds, and what meaning they attribute to their experiences (p.5). Using a single-case study design, the guiding research questions were:

1. How do sixth graders in an English Language Arts class describe their reading practices when they read informational texts online?
2. In what ways do they engage with informational texts online?

3. In what ways do they comprehend or not comprehend informational text online?

Research Design: Case Study

This study used a case study design, which allowed the researcher to explore the reading habits of six students to gain a deeper understanding into how sixth graders comprehend information on the Internet. The goal of a case study is to extend a holistic, descriptive account and analysis of data beyond numbers and graphs typically presented in quantitative studies. A case study design was deemed appropriate for this study to build upon a few previous studies in order to gain a deeper understanding of how students use literacy strategies when reading informational texts in a digital environment. A case study provides a more detailed account of the setting and situation (Creswell & Zhang, 2009). This methodology allows the researcher to observe, interview, and analyze the reading practices of middle school students while they engage with digital texts. To understand this phenomenon, the data evolved into a thematic analysis approach focused on themes and patterns that were revealed during the process of data collection and analysis. The overall design of this study presents data using a thematic analysis approach, described through a formal, objective, systematic process where data is used to test the following research questions:

Creswell (1998) describes qualitative research as an “inquiry process of understanding based on distinct and methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants and conducts the study in a natural setting” (p. 15). This method is appropriate because I observed students’ reading practices in a classroom. The classroom setting is a natural environment and considered a bounded

system in which the researcher collects data to observe a particular phenomenon (Stake, 2000). This case study was an approach that aids in the exploration of a phenomenon using a variety of data sources, such as field notes, text questions, student artifacts, think-aloud interviews, classroom observations, and memos. This approach makes certain the problem was explored through multiple lenses and viewed in a variety of ways, allowing for multiple facets of the phenomenon to be revealed and understood (Stake, 1995). Specifically, the data aids in gaining a perspective of the literacy practices middle school students use to read, interpret, analyze and comprehend information online. An in-depth case study was the qualitative method I used to study a group of sixth grade learners. This approach allowed the researcher to describe the phenomenon unfolding in the classroom and it allows researcher to collect data from varying data sources to allow triangulation. Yin (2003) describes a case study approach as a constructivist paradigm recognizing the significance of the subjective human creation. This suggests that a case study design should be considered when the study seeks to understand the “how” or the “why” behavior of subjects, with no variables to manipulate, and the study takes place in contextual conditions. For this study, a case study was used to describe a type of phenomenon within the real-life context in which it occurred (Yin, 2003).

Last, I describe the researcher’s methods, rationale of the study, data collection procedures, data analysis process, reliability/validity, ethical issues and possible limitations of the study.

Single Case Study

In this study, students were the unit of analysis in a single case study (Yin, 2003). First, all participants were observed as a whole and interviewed individually while they

engage in a think-aloud participating in identical tasks online. Second, I used a within-case analysis to examine how each student engaged with informational texts online and the reading strategies they used to help them to comprehend. Last, I reviewed patterns and themes among participants through the lens of a cross-case analysis approach that revealed several similarities between what reading strategies students used online and in printed texts.

Research Site

This study took place in an urban middle school located in an area outside of a larger southeastern city in the United States. The school serves sixth through eighth grades. The estimated school enrollment is 1038 students enrolled in the 2015-16 school year. The student demographics represent 59% African American, 19% Caucasian, 9% Hispanic, 8% Asian and 4% American Indian and 4.6% Multi Racial. Of this population, 31% are gifted, 1.8% with disabilities and .2% are Limited English Proficient.

I chose this research site based on convenience and location. This middle school is relatively close in proximity to my current workplace and I was able to gain access due to leadership connections and collaborative efforts with my current middle school and this potential research site. I emailed the principal in preparation for pre-visits to the school. I discussed my research questions and intended purposes of the study. Once access was gained, I worked with a particular Language Arts teacher to identify six students that participated in individual interviews and studied their reading practices online. Letters were sent home to the parents to obtain consent for students to participate in the study. I built a rapport with the teacher to make the study as seamless as possible. The study took

place in a sixth-grade class over a six-week period during the months of January, February and March 2017.

Participant Selection

Purposeful sampling was used to select participants. Participants included six students and one English Language Arts teacher in a sixth-grade literacy class in an urban middle school with a population of 1200 students. A small, purposeful sample was selected based on students' reading abilities using the end-of-year state reading test. Opposed to researching a change in performance, and because this research seeks to better understand student reading processes, a descriptive account of low and high readers served as data. There were two criteria for this selection process: reading ability levels and gender. Low readers are those who score a level I or level II on the end-of-grade test, average readers are those who score within a range of level III, and high readers are the learners who score within range of level III, IV or V. One girl and one boy were selected for each reading level (levels I, II and III). When little is known about a phenomenon, such as online reading strategies, investigating a small group of participants provides a more focused analysis to guide future research (Stake, 1995; Yin, 1989).

Recruitment Strategy

Prior to final selection of the six participants, I visited the school to meet with the principal and teacher to build relationships and to participate in preliminary visits to the classroom. Then, with the help of the principal, a teacher and one English language arts class were suggested for this study. Next, I met with the teacher to discuss logistical information, such as start and end time for this class, the actual class block that would

best fit the study, and my position as the researcher in the classroom environment. Last, with help of the teacher, eligible students were identified and given consent/assent forms (Appendices B and C) needed to submit to the researcher. These students were asked to share the letters with their parents and bring the forms back by a particular date. In a later meeting with the teacher, meeting dates and times were provided that were most convenient for the teacher and her students which would minimize any disruption to the regular classroom instruction. All eligible students received consent forms and students who met the criteria and returned the forms signed by their parents/guardians and themselves by the requested date continued to the next phase of individual interviews. The teacher compiled all students who returned the consent forms for regular classroom observations and selected six students who met the criteria for think-aloud interviews. Before data collection began, parents of students chosen for individual interviews were notified prior to interviews.

Data Collection Methods

After obtaining approval from the Institutional Review Board at my institution and obtaining external research approval from the school district, data collection began. I used multiple methods to collect qualitative data. I conducted interviews, field notes, and collected classroom documents such as students' responses to questions after reading information text online. I used a think-aloud protocol approach to understand how students make meaning when reading informational text (Appendix D). I conducted think-aloud interviews, classroom observations, and analyzed student work to assist in triangulating the findings (Forsyth & Lessler, 1991).

Classroom Observations

Over the course of six weeks, the researcher observed students in the classroom setting for an average of three hours each week. The purpose of the observations was to record student-teacher interactions and to develop a detailed picture of the instructional reading program. During classroom observations, I participated as an observer in the lectures in a language arts class selected for the study in order to observe students' level of engagement using digital resources and to gain insight of the literacy practices in the context of their environment. I recorded field notes of student-teacher interactions, strategies used by the teacher and her students, and any digital resources used during the lesson (Appendix D). The classroom observations were guided by a semi-structured observation protocol.

For this study, class observations were the first form of data collection. After reviewing the school daily schedule, classroom observations were scheduled twice a week. These classroom observations began with an overview of the study, a review of the signed consent/assent forms, and time to complete the reading survey questionnaire.

Individual interviews. During the second wave, in-depth think-aloud interviews were conducted with each of the six students selected. Using a semi-structured protocol, I asked students to answer specific questions from the think-aloud activity and then describe how they interpreted the questions (Appendix H). Concurrent verbal probing was used in the first round of interviews. This method involves the interviewer asking a question, having the subject answer, and the interviewer asking more specific questions to elicit further information about the response (Willis, 2005). Retrospective probing was used where I asked subjects at the end of the interview to verbalize their thoughts about

the questions they answered earlier when taking the questionnaire (*potential risk*: bias resulting from a poor selection of probes).

Process. Participants were asked to “think aloud” while answering some questions and encouraged to verbalize his/her thought processes while answering survey questions (open-ended design). I directly observed participants while they interacted with the online text, particularly social behaviors and actual interactions with the text while reading. I collected student work and archival records relative to each participants’ reading skills in this class. I used “think-alouds” to help determine how students make sense of texts, along with verbal probing (Ericsson & Simon, 1980). The think-aloud strategy asks students to say out loud what they are thinking about when reading or responding to questions posed by the researcher. I used cognitive interviewing which is a thinking aloud strategy with verbal probing (Willis, 2005), a commonly cited question-response model that contains four stages: comprehension, retrieval, judgment, and response. The interview consisted of participants exposing his or her mental processes by talking aloud as the participant read the online text that did not require any preparatory instruction; however, the researcher prompted students using stem statements when students paused during their think-aloud. Cognitive interviewing studies have the potential to examine concerns of comparability including the accuracy of interpretations or similarity across socio-cultural groups (Goerman & Casper, 2010; Willis & Miller, 2011).

During the second wave, I engaged participants in face-to-face interviews. Interviews were recorded, and I took notes during the discussion. Interviews with the classroom teacher were conducted twice to gather insights into her view on her

pedagogical decision-making, teaching and learning ideologies. I generated a set of semi-structured prompts to guide the interview (Appendix H).

Data Collection Phase

Data collection took place from January to March, ending just as the students were about to prepare for end-of-grade testing. Procedurally, classroom observations were the first phase in this study. This was an important step because I wanted students to become comfortable with my presence before meeting with a few students one-on-one. After the class observations, the select group of students were able to sign up for a day and time for their individual interviews. Multiple qualitative methods provided a triangulated examination of the phenomenon under study. The study consisted of three phases: field observations, think-aloud interviews, and a survey with each participant to gain insight of what students were doing online. In the initial stage of the study, participants completed a survey that provided information about their reading habits while reading print texts. The survey data gathered information about students' metacognitive awareness of their reading skills online (Appendix F). To prepare for think-aloud interviews, participants participated in a practice session. An audio recording captured student voices and thought processes as they engaged in reading, locating, and comprehending informational text. I journaled the participants' actions and behaviors during the 45-minute sessions. Each interview took place in a separate setting other than the assigned classroom. The classroom teacher participated in a 45-minute interview regarding her selection and use of digital resources, and perspectives on students' literacy skills online and offline. I used a separate interview protocol that consisted of semi-

structured questions. Throughout the study, I collected samples of student work for informational print text and an online task as assigned by the teacher.

Reading in a website context. The audio-taped interview began with a brief over-view of how to participate in a think-aloud interview to ensure participants' level of comfort with sharing what they do when they read online. Next, participants were asked to read within one semi-layered website, which is titled "Smithsonian TweenTribune" (www.tweentribune.com). Participants were asked to think aloud while reading an article about national parks, answer questions to three literal questions, and search for information about an additional national park that spark their interest. The TweenTribune website was selected by the teacher as an online support to build students' reading comprehension skills when they read informational texts. Additionally, TweenTribune was selected for its well-organized features providing reading experiences, such as, reading for information, answering questions, and discussion posts for middle school students. At the time of the study, the Smithsonian TweenTribune website (Figure 2) contained informational text passages ranging in different reading levels, hyperlinks, photographs, and quizzes. A team of sixth-grade teachers determined the appropriateness of the website and reading tasks for skilled sixth-grade readers. The site was easily accessible to students with a username and password assigned by the teacher. Each participant was provided a typed sheet with directions to complete all tasks, which read:

Follow the directions on this sheet to complete a series of tasks the article titled: "Visits to National Park Sets Record."

1. Log into the website.

2. Read the article using the think aloud protocol.
3. Answer the questions in the quiz link.
4. Open a new browser and search for additional information about a national park that interests you.
5. Explain your process while engaging in the above tasks.
6. If time permits, create an infographic about the national park.

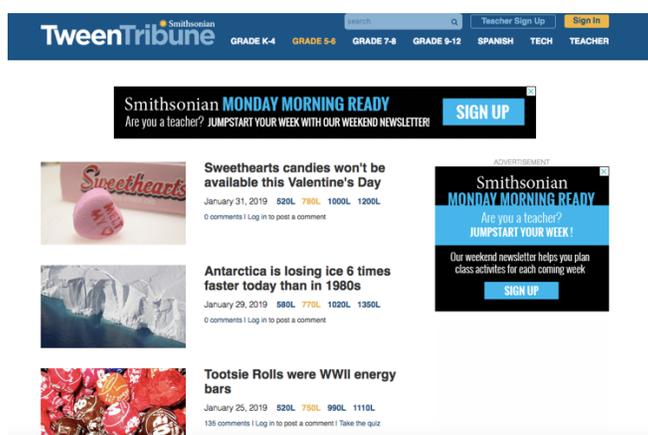


Figure 2
Screenshot of the homepage for Smithsonian TweenTribune: (www.tweentribune.com)
with article and reading levels

Pilot Study

I decided to complete a pilot study in the effort to increase the trustworthiness of this study. Fain (2010) explains that pilot studies are a smaller test run of a larger research study. One benefit of conducting a pilot study is to permit the researcher to make necessary adjustments and edits for the main study (Kim, 2010). Also, Kim (2010) suggests pilot studies are especially beneficial for new researchers. While preparing to conduct a larger study, I used that time to revise my protocols and to become familiar with the process of conducting a qualitative study. During this time, I sought to learn

more about the setting for interviewing students and to verify the interview protocol already established for my study. Next, I discuss the details of the pilot study to include the location, participants and the process.

Location and Participants

The design of my study was to observe the experiences of sixth grade students engaging with informational text online. I was interested in their online reading habits and the strategies they use to comprehend what they read in an online environment in the language arts classroom. To pilot this study, I chose a different location other than the research study site. It was a convenient study location due to where I currently taught. Participants for the pilot study had to meet the criteria of a sixth grader in language arts class where the teacher used the Internet for reading assignments.

Pilot Procedures

This pilot study was designed to conduct a trial run of the effectiveness of the individual interview protocol. The protocol was finalized after conducting individual interviews and gathering data about how students were responding to the process of a think-aloud. The following steps outline the pilot study:

Step 1: Developed a think-aloud protocol

Step 2: Gained permission from the principal at my current location to conduct preliminary research.

Step 3: Successfully defended the dissertation proposal

Step 4: Identified two to four students from grade six with whom to conduct interviews

Step 5: Secured parent/guardian permissions to speak with students

Step 6: Scheduled time to conduct interviews without disrupting regular reading instruction

Step 7: Conducted think-aloud interviews with three six graders (three different reading levels) for about 30 minutes.

The interviews were supposed to last one hour; however, time only permitted 45 minutes for each. I used the original created protocol and audio recorded discussions. Students were asked for their genuine feedback about the protocol and what changes would they suggests for the researcher. Students expressed that the use of prompts helped them continuously share aloud their online experiences while working through their assignments at the same time. Following this process, the draft of the individual interview protocol was slightly edited. The larger study did not include any data from the pilot study. All protocols were updated and finalized before data collection began at the approved research site.

Data Analysis

Thematic data analysis is critical to the process of interpreting and presenting findings. Braun and Clark (2006) define thematic analysis as “a method for identifying, analyzing and reporting patterns (themes) within data” (p.6). Thematic data analysis was the method used to answer the following research questions: 1) How do sixth graders in an English Language Arts class describe their reading practices when reading informational texts online? (2) In what ways do they engage with informational texts online? (3) In what ways do they comprehend or not comprehend informational texts online? Figure 3 describes the six phases of thematic analysis by Braun and Clark (2006).

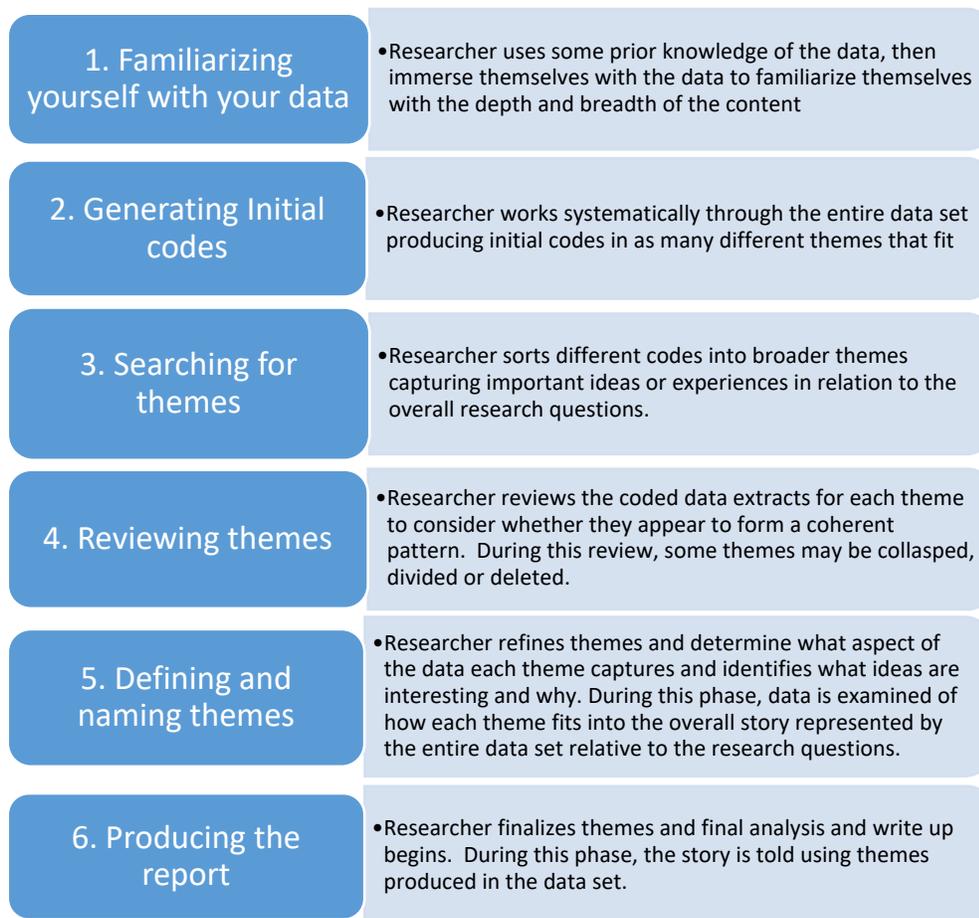


Figure 3: Description of thematic analysis: Adapted from “Using Thematic Analysis in Psychology,” by V. Braun and V. Clarke (2006), *Qualitative Research in Psychology*, 3(2), 77-101.

I described, explained, and developed theories through a thematic analysis process (Braun & Clarke, 2006). The first data coding system involved open coding to identify thematic patterns derived from student responses and organized the data into categories for further analysis. Analytic memos were created based on notes and digital recordings after each session with each participant. These memos contain a summary of each student’s response to specific items and the researcher’s impression of the quality of the survey questions based on those responses. Themes and patterns derived from classroom observations, survey questions, individual student interviews, which were transcribed

using line-by-line using open-coding (Glaser & Strauss, 1967) to relate codes to each other. Next, the open codes were reviewed to identify conceptual connections between categories using axial coding to identify relationships among the open codes (summary of what reviewers see happening). The researcher completed assignment of these codes independently. The data was grouped together on a grid so that trends and patterns could be observed between subjects (Miles & Huberman, 1994). Following Yin's (1994) strategy, each subject's data was analyzed separately. The researcher read all data from each case searching for themes, patterns, and contradictions. Multiple data sources were compared to include surveys, face-to-face interviews, and student work (Yin, 1994). Data collected from these sources manifested into open codes that represent the data within categories.

Coding process. Open coding is the first stage in the development of creating grounded theory (Strauss & Corbin, 1998). Twenty-two open codes derived among all six think-aloud interviews and post interviews. In the next and final phase of coding the data, I used axial coding to make connections between the categories in order to identify broader concepts that described collectively the reading strategies and reading habits students engaged in on the Internet. The twenty-two open codes emerged into broader categories that represented all six participants' reading habits online. In this study, I found it important to gain insight specifically about each participants' reading strategies; therefore, I used a with-in case analysis to identify the twenty-two open codes from each participants' data sources (interviews, observations, and student work). Individual data sources revealed similarities in reading strategies students used when reading online and in printed texts. The relationships among the open codes found with-in each participants'

data revealed similarities among the reading strategies; consequently, a cross-case analysis was used to create a classification scheme to group the codes into broader categories.

Ethical Considerations

Approval was granted using the proper protocols of the Institutional Review Board Process (IRB). Potential participants received written information and were invited to return them via email, mail-in or the classroom teacher. All participants were asked to sign a consent form and they were reassured that they may change their minds at any time during the process without any negative consequences. At the beginning of each interview, verbal reaffirmation of consent to tape record was requested. Consent to use specific student work samples/artifacts was requested of each participant.

Strengths/Limitations

Strengths

Single-case study design allows close collaboration between the researcher and the participant while enabling participants to tell their story (Crabtree & Miller, 1999). For this study, the researcher observed participants in their learning environment—the classroom. Case studies allow researchers to use a variety of methods to collect and analyze data (Yin, 1994a). However, Yin (1994a) also recognizes the criticism of case studies concerning the amount of data. Too little data may not produce enough evidence. Case studies are descriptive in nature and the analysis which critics label as storytelling opens up this approach to much criticism (Denscombe, 1999).

Limitations

Creswell (2002) notes that limitations are potential weaknesses of a study. A particular limitation of cognitive interviewing methodology is that, while it can discern various patterns of interpretation, it cannot determine the extent to which interpretive patterns exist or vary in actual survey data (Miller & Lambert, 2014). The use of purposeful sampling confines the data to those six students, narrowing the opportunity to generalize the findings to larger populations.

Based on my experiences of working with sixth graders in the past, I had preconceived assumptions about how children react to online environments and how students demonstrate difficulties with informational texts. I remained neutral and open-minded to avoid compromising the data through daily journaling throughout the entire study.

Benefits to Participants and Stakeholders

This study was designed to provide a description of sixth grade experiences engaging with online informational texts through their voices. The benefit for all students was to have their voices heard concerning how they learn. This research adds to the field by providing all stakeholders with an insight to what middle school students are experiencing in the classroom and online when they read for information. This data is most valuable to teachers and support staff at the school level as they continue to make strategic educational decisions about how to deliver effective instruction. Regardless of student responses and experiences, this information could be shared with curriculum specialists and school leaders to support teachers in providing the most effective strategies for their students when learning in an online environment.

Summary

This chapter provided an overview of the research design and methods for data collection and analysis. Using a multiple-case study method, this research used classroom observations and individual interviews to answer three research questions about the experiences of sixth grade students when they read for information in an online environment. Also, chapter three included information about the pilot study and ethical considerations. Last, data analysis was prepared thematically throughout the study. In the following chapter, the findings of the research are presented.

CHAPTER FOUR

FINDINGS: CASE STUDIES

In this study, I observed six sixth grade students' interactions with informational texts on the Internet and the reading practices they engage in while making meaning of what they read. Specifically, in this study, I examined what happened when students read informational texts, navigated on the Internet, and comprehended texts as they searched for information online. Specifically, I explored: a) what strategies students used when they read online informational texts, b) students' engagement as they read online, and c) the ways students comprehend informational texts within a digital environment. I employed a think-aloud protocol to examine middle school students' reading practice when reading online. The following questions guided my inquiry: (1) How do sixth graders in an English Language Arts class describe their reading practices when reading informational texts online? (2) In what ways do they engage with informational texts online? (3) In what ways do they comprehend or not comprehend informational texts online? Chapter two included the theoretical framework and a review of prior literature relative to this study. Chapter three describes the methodology in this study. This chapter describes the findings in this study.

Chapter four identifies and describes three major findings for each research question that emerged from the data. These findings revealed that students transfer similar and slightly different reading strategies when reading nonprint informational texts than when reading for information online. An analysis of the data revealed three themes for each research question from think-aloud protocols, post interviews, post survey

documenting online reading experiences, and classroom observations providing six students' views of several reading practices they engage in when reading on the Internet. In a few cases, these practices are similar to and different than reading strategies students use when reading printed text.. These findings (Table 1) provide insight on how students learn when reading informational texts online and researching independently on the Internet. Specifically, the findings are as follows: RQ1 (1) Students were translating the same skills and behaviors reading print texts and online texts; (2) Higher-level readers question texts more than lower readers as they read; (3) Lower readers viewed online text as linear text; RQ2 (1) Students used navigation skills when reading online to complete tasks; (2) Students use navigation tools to locate information online (3) Students engaged in meaningful reading for a purpose; RQ3 (1) Students persevered in reading and comprehending online text; (2) Students used think aloud strategy to explain what they read and researched; (3) Students saw value in multiple reads of informational text online [conducting multiple reads of one text when reading online].

Background

The participants in this study were six sixth grade students. The students attended a middle school in a PreK-12 school district in a Southern state. Each participant attended English Language Arts class. The students (three males and three females) were age eleven.

Data Analysis Process

I collected data by immersing in the field, recording observational notes, writing analytical memos based on the observational notes, coding the analytical memos, sorting the codes, and comparing the codes. The analysis began with open coding, which is a

process that aids the researcher in identifying concepts, patterns, and/or themes. Next, I used axial coding to sort the open codes into closed categories.

Participant Recruitment

I recruited six students (all names are pseudonyms) by sending invitations to students in an English Language Arts class. Table 1 reports each participant's gender, age and Lexile reading level. Pseudonyms were used to protect participants' identities.

Table 1
Participant Information

Participant #	Pseudonym	Gender	Age	Lexile Level
1	Brandon	Male	11	Level 3
2	Chase	Male	11	Level 3
3	Jessica	Female	11	Level 2
4	Kim	Female	11	Level 1
5	Maria	Female	11	Level 3
6	Michael	Male	11	Level 2

Table 1 displays participants tests scores for last year end-of-grade assessment, current MAP scores, and current report card grade at the time of the study. The following table (Table 2) specifically provides data collected from Ms. Riley (pseudonym) on the scores of students from local and state required tests and classroom assignments that demonstrates students' reading abilities individually and in comparison to their peers.

Table 2
Participant Reading Achievement

Pseudonym	EOG Scores (5 th Grade)	Fall MAP Score	Report Card Grade (Quarter 1)
Brandon	44 %ile	83%	66/D

Chase	40 %ile	61%	89/B
Michael	36 %ile	59%	81/B
Jessica	36 %ile	20%	61/D
Kim	14 %ile	28%	64/D
Maria	40 %ile	28%	76/C

Notes. 1. %ile=percentile

Prior to classroom observations, I interviewed the teacher to gain knowledge about how often and when students read informational texts online in this English Language Arts class. The following interview provides background information about Ms. Riley’s teaching experiences and how print and non-print informational texts are integrated into the English language arts curriculum in her classroom.

Teacher: Ms. Riley

Ms. Riley (pseudonym) has taught in North Carolina for two years and holds a certificate in Standard Professional 1 English 6-12. She is a black female, 24-years old with five years of teaching experience. Her teaching experiences reflect working in schools that are not designated as Title 1. Ms. Riley plans with the English department weekly and contributes to the decisions of what skills and knowledge students will need to be successful in reading. Ms. Riley and her teammates use the Common Core State Standards and the district pacing guide to create unit lesson plans that incorporate fiction and nonfiction texts. She uses technology in her class weekly as an additional resource. In a typical day of classroom instruction, Ms. Riley spends a majority of her time teaching narrative texts. She explained the balance between nonfiction and fiction texts taught weekly, stating, “During our nonfiction unit, about two to three lessons per week involve informational texts. During our fiction unit, about two to three lessons per week include the use of a narrative text.” Ms. Riley understands the importance of teaching

nonfiction because students will encounter informational texts on state tests and most of their adult life. She shared:

Informational text is beneficial for my students because it is the type of text that they are most likely to encounter and interact with; not only in other courses at school, but in real life as well—each individual has a responsibility to keep abreast of current events and to be able to parse and analyze information given them in order to succeed at their respective careers. Also, the skills that they will gain from interpreting informational texts will follow them in other language arts units.

Ms. Riley is reflective about how often she teaches informational texts in her classroom and she recognizes the disconnect between both fiction and nonfiction texts read in class. She said, “During our nonfiction unit, we typically spend an average of 20-25 minutes per class looking at nonfiction texts. Nonfiction texts is taught mostly in isolation during an assigned unit outlined by the sixth-grade teachers.”

After learning about each participant, I conducted think-aloud interviews and classroom observations, and participants completed an online reading survey. The survey produced results that support students’ reading habits observed as they read informational texts online. The results provide insight about how participants use reading strategies in a digital environment.

Classroom View

Teacher Uses Novels and Literature Circles to Teach Reading Strategies

During the first classroom visit I observed as the teacher led a class discussion with students about the process of choosing a novel in print or the PDF version of the

novel. Ms. Riley uses a class wiki page for students to ask the teacher questions. Students use assigned literature circle roles to discuss the novel using literature circle protocols (Daniels, 2004). During literature circles, students rotate through four different roles such as discussion leader, diction detective, bridge builder, and reporter. Each role specifically requires students to use their individual roles to engage with the text. Each role provides specific directions and prompts to lead students through the process of their assigned roles. The students received a literature role template to manage their discussions (Figure 4).

Bridge Builder Role Sheet

Name:		Book:	
Group:		Pages:	

Your job is to build bridges between the events of the book and other people, places, or events in school, the community, or your own life. Look for connections between the text, yourself, other texts, and the world. Also, make connections between what has happened before and what might happen as the narrative continues. Look for the characters' internal and external conflicts and the ways that these conflicts influence their actions.

Event from Book	Types of Connections:	Connection
	<ul style="list-style-type: none"> • Text to self • Text to text • Text to world 	
	<ul style="list-style-type: none"> • Text to self • Text to text • Text to world 	
	<ul style="list-style-type: none"> • Text to self • Text to text • Text to world 	

What has happened previously in the book?	Predict what will happen as the book continues.
---	---

Discuss a character's internal and/or external conflict, and the ways that conflict has influenced or will influence his or her actions.

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Figure 4: Literature Circle Roles

Diction Detective Role Sheet

Name:		Book:	
Group:		Pages:	

Your job is to carefully examine the diction (word choice) in the assigned section. Search for words, phrases, and passages that are especially descriptive, powerful, funny, thought-provoking, surprising, or even confusing. Complete the graphic organizer below on the selected words, phrases, or passages. During the discussion, you can read the words, phrases, or passages yourself; ask someone else to read them; or have people read them silently before sharing your thoughts on it.

Page #	Word, Phrase, or Passage	Reason for Selecting Word, Phrase, or Passage	Why did the author select this word or phrase? What is the author trying to say? How does the diction help the author achieve his or her purpose?

Figure 4, continued

The students had two minutes to choose their roles. The roles rotated each week, so each child had an opportunity to engage in multiple roles. For their literature circle discussions, students choose between two books, *A Monster Calls* and *Walk Two Moons*.

At the end of the first classroom observation, I interviewed Ms. Riley to learn more about her teaching experiences with sixth-grade students, and the reading strategies she taught students as they engaged in reading informational texts in an effort to gain more in-depth knowledge about her pedagogical approach when teaching her students to read and comprehend printed informational texts and online informational texts.

Teacher Uses Think-aloud Strategy as a Reading Tool

On another occasion, I observed Ms. Riley’s lesson using an article about Haiti posted on her teacher website—a place where students can find classroom assignments and resources. It appears that Ms. Riley teaches students to interact with printed texts and online texts in very similar ways. The difference is that she posts articles on her teacher website. Ms. Riley posts most assignments on her webpage. Ms. Riley opened the class telling students to “find an article about Haiti on the webpage. Ms. Riley used a think aloud protocol to prepare students to be able to explain what they were thinking and doing as they engaged with informational texts on the Internet. She modeled the process of thinking aloud for the students as she read the text aloud. The modeling consisted of her making connections with the text, summarizing what she read by making sense in her own words, inferring meanings of words and phrases, and using context clues to determine the meanings of unknown words. As she read the article aloud, she began the whole class discussion with a prediction question. She asked, “What do you know about Haiti?” Brandon responded, “It’s a poor country.” Ms. Riley asked a follow-up question, “How do you know?” Brandon responds back, “The news.” Ms. Riley asked students to skim the article and continue to make predictions:

- Ms. Riley: “Take a few minutes to skim the texts, then we can make predictions and see what we have there.”
- Student: “Okay”
- Ms. Riley: Read the first sentence aloud.
- Michael: [read aloud] “He is on the plane.”
- Ms. Riley: “What words did you skim that caught your eye?”
- Student: “Habitat and humanitarian”
- Ms. Riley: [calls on a student] “Can you tell us more about it?”
- Student: “Some people donate their stuff.”

She called on a few students randomly to read lines aloud. Ms. Riley used prompting questions to stimulate the class conversation and to push students' thinking towards making connections. Next, she modeled how to make inferences "backed with evidence." Here is a snippet of the conversation between teacher and student:

- Ms. Riley: "Now, what can you infer about..."
 Student: "That he is gripping the plane."
 Ms. Riley: [reads aloud with inflection] "Now, let's pause for a moment to reflect."
 Ms. Riley: "What do we see? Back up with evidence."
 Student: "Really tropical. We see palm trees is the evidence in the story."

Children's View

Individual Case Portraits of Six Middle School Readers

This section provides a single case study descriptive portrait of the six readers in this study. The descriptions provide a detailed picture of each participant in class and their online reading experiences when reading informational texts. The teacher guided the in-class reading assignment and the students worked independently to complete their online assignments. I begin by describing the students' background as a reader in their English class. Next, I share my observations of the teacher and student interactions during a lesson reading an informational article in class. Finally, I provide a context for the online computer instruction used for extended reading practice each student received and describe each students' experiences online from their perspective. Together, these multiple data sources provide a rich profile of each readers' reading experiences on the Internet.

In preparation for the first interview, I modeled for the first interviewee (Brandon) how to use the think-aloud strategy to share what he was thinking and doing while he read and responding to texts online. I subsequently used the same modeling process for

all participants prior to recording the actual interviews. After practicing read-aloud protocols with their teacher, participants were ready to share their reading practices using a think-aloud when reading informational texts online. The first reading assignment (Figure 5) was available for students on the website, TweenTribune. Students read an article called “Visits to National Parks Set Record.”

The screenshot shows the TweenTribune website interface. At the top is a navigation bar with the 'TT' logo and links for GRADE K-4, GRADE 5-6, GRADE 7-8, GRADE 9-12, SPANISH, TECH, TEACHER, MY DASHBOARD, and LOG OUT. A search icon is also present. Below the navigation bar is a large photo of hikers on a trail. To the right of the photo is a blue promotional box for 'Smithsonian MONDAY MORNING READY' with a 'SIGN UP' button. Below the photo is the article title 'Visits to national parks set record' by Brady McCombs, dated January 27, 2017. There are social media sharing icons for Facebook, Twitter, and Pinterest. Below the article title is a 'LEVEL' indicator with a range from 790L to 1380L. To the left of the main text is a smaller photo of a park landscape. The main text describes how visits to U.S. national parks set a record in 2016. To the right of the main text is a 'TEACHER LINKS' section with links for 'Teacher Resources', 'Manage classrooms & students', 'Create instructions for your students', and 'Assignments Dashboard'.

TT GRADE K-4 GRADE 5-6 GRADE 7-8 GRADE 9-12 SPANISH TECH TEACHER MY DASHBOARD LOG OUT

This May 5, 2015, file photo, shows hikers on the Calycyn Overlook Trail in Zion National Park. (Trent Nelson/The Salt Lake Tribune via AP, File/AP Photo/Brennan Linsley, file)

Visits to national parks set record

By Brady McCombs Associated Press | January 27, 2017

LEVEL 790L 940L 1070L 1380L

Visits to U.S. national parks set a record in 2016 for the third consecutive year. Landmarks such as Zion, Yellowstone and Rocky Mountain experienced historic levels of popularity that brought collateral headaches stemming from overcrowded roads and trails and increasing visitor misbehavior.

At many parks, visitors waited an hour or more in cars to get through entrance gates. Then they spent the day trying to outmaneuver fellow visitors for parking spots and room on popular trails. They left behind enormous amounts of trash and sometimes

TEACHER LINKS

- Teacher Resources
- Manage classrooms & students
- Create instructions for your students
- Assignments Dashboard

Figure 5: TweenTribune website: “*Visits to National Parks Set Record*” article

TT GRADE K-4 GRADE 5-6 **GRADE 7-8** GRADE 9-12 SPANISH TECH TEACHER MY DASHBOARD LOG OUT

The agency's "Find Your park" campaign will continue this year. Officials expect to surpass 300 million visitors again even if there's no record, Olson said.

Absent December totals, the Grand Canyon in northern Arizona hit 5.9 million visits. Yellowstone, which stretches into Wyoming, Montana and Idaho, had 4.3 million visits.

The final year tally for Rocky Mountain in Colorado was 4.5 million. Zion in southern Utah had 4.3 million visitors. That was nearly double the 2010 total.

Cramming all those people into the narrow confines of Zion can be a problem. Most visitors want to see the same iconic slot canyons and trails. That has led many days to hour-long waits to get in the park, lots that fill up by 9 a.m. and crowded shuttles, Marciano said.

"Then, you hike like ducks in a row up the trail because there are so many going up the same trail," Marciano said. "That's not what we want."

One employee spent her entire summer hiking every day to the popular Angels Landing trail to clean and put more toilet paper in two portable toilets designed for 40 visits daily that had 200, he said.

Both Zion and Yellowstone are reassessing how to create better crowd plans. Zion is considering a reservation system for park entries and a daily visitor limit.

Even though it is prohibited, more people are taking dogs on trails in the Rocky Mountain park. Visitors are also parking cars on native vegetation or fragile alpine tundra. Some are leaving human waste right near backcountry trails, Patterson said.

This summer, for the first time, the park limited the number of cars allowed on two

room on popular trails. They left behind enormous amounts of trash and sometimes, human waste.

Encountering a crowded, Disneyland-like situation when people were expecting peaceful serenity can lead to aggression and bad decisions, park officials said.

"The level of frustration, we've certainly seen an increase in that," said Kyle Patterson. She is Rocky Mountain National park spokeswoman. "Sometimes they take it out on each other. And sometimes they take it out on a park.

It created a good news-bad news story for park managers. They praise the increased interest. But they are struggling to preserve iconic mountains, slot canyons and wildlife habitat for future generations. The National Park Service budget has remained basically flat. That leaves parks to grapple with the problems without higher staffing levels.

"We love having people come to the park," said John Marciano. He is the Zion National Park spokesman. "But our No. 1 goal, our mandate, is to preserve the park into perpetuity. And to ensure our visitors have a best of kind and safe experience."

Overall visitation to national parks is on track to surpass 325 million in 2016. That would break the all-time high of 307 million. It was set in 2015, federal figures show. The record-breaking three-year stretch came after parks visitation ebbed and flowed between 255-287 million for nearly three decades.

The National Park Service launched a major marketing campaign to celebrate its 100th birthday in 2016, including free passes for every fourth-grader and their families. That renewed attention coupled with reasonable gas prices and an improved economy likely fueled the increase, said National Parks Service spokesman Jeffrey Olson.

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1100L-1190L	1200L-1290L	1300L-1600L

TT GRADE K-4 GRADE 5-6 **GRADE 7-8** GRADE 9-12 SPANISH TECH TEACHER MY DASHBOARD LOG OUT

Assignments Dashboard

Gradebook Dashboard

Photo Gallery: What Do You See?

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Figure 5, continued

In addition to participating in a think-aloud interview, students were asked to take a survey that allowed time for reflection about their reading experiences online and reading strategies they used when they read and searched for information. The questionnaire asked students to rate their use of online reading strategies on a Likert scale

1-5. The survey proved to be useful as it revealed misconceptions about what reading strategies students believed they used when they read online versus what actually happened. Follow-up discussions after the think-aloud interviews helped the researcher and participants to clarify what happened and how they choose to read, engage and comprehend on the Internet.

Case Study 1: Brandon, a High Performing Reader

Brandon is an eleven-year-old African-American male. Based on his English teacher's observations, Brandon reads with minor focus and is often off task during classroom instruction. He demonstrates the characteristics of a good reader but does not turn in all work as assigned. His overall class assignments, test grades, and homework average 66%. Brandon began the quarter with a letter grade A in Language Arts class. However, his grade quickly dropped to a letter grade B mid-quarter. In a conversation with his teacher, he was unaware that he had missing assignments that contributed to the decrease. For example, he missed turning in one project and the missing assignment significantly lowered his overall grade point average. He is an inquisitive student with many questions, but sometimes seems confused about assigned tasks, particularly when it comes to test dates and classwork due dates. Brandon's teacher describes him as "brilliant" and "very witty." He enjoys spending time on the Internet, in class and outside of class. In the last three months, Ms. Riley says Brandon's parents have not communicated with her thus far during the school year. However, Ms. Riley expressed that she had planned to call Brandon's parents to discuss his low grade in her class. In speaking directly with Brandon, prior to the interview, his reading goal was to increase his grade back to grade A.

Classroom observation. Brandon walked in class and awaited directions from the teacher. He sat with a small group of four students. As Ms. Riley prepared the computer on the overhead, and students chatted amongst each other. She requested their attention and introduced the lesson as a shift from literature to a more in-depth focus on informational texts for this quarter. The purpose of this lesson was Ms. Riley would teach students a think-aloud strategy to get students in the habit of sharing what they were thinking about when they read and what strategies help them to comprehend what they read. The teacher printed out the “Helping in Haiti” article on paper and projected the online version of the article on in front of the class for modeling purposes. She modeled annotating the article using multiple strategies, such as using background knowledge, making inferences, and decoding words and phrases while students followed along. Brandon was very attentive to teacher directions and raised his hand more often than other students when Ms. Riley asked the entire class open-ended questions about a nonfiction print text. Brandon followed along with the teacher as she conducted a read-aloud of a nonfiction print text about Haiti. Ms. Riley paused between chunks of text and ask students to mark their text as well. On this occasion, Brandon did not annotate the text as this was an expectation of the assignment. Figure 6 shows an example of Brandon’s copy of the article demonstrating that he did not annotate the article during this lesson. On the front page of the article, he highlighted one phrase with a pink highlighter. On the backside of the article he did highlight the text. The highlighted phrases were statements Brandon felt were significant information for him to remember.

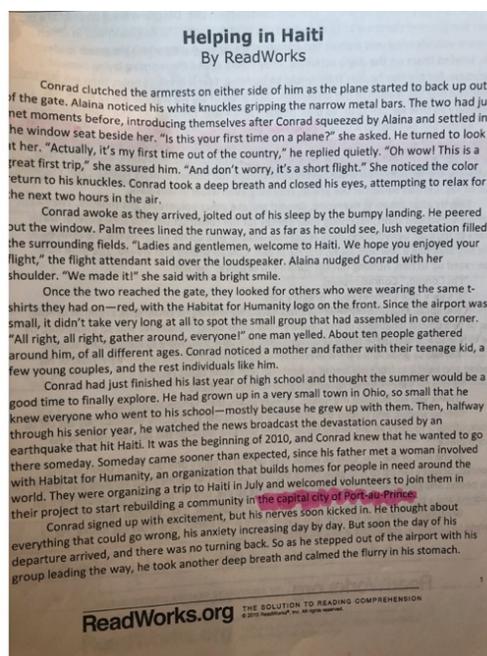


Figure 6: Brandon's text annotations

After reading the article, students were asked to answer the text-dependent questions about the article independently, then share with a partner. Brandon recorded his responses to the questions about the text on the lines provided. Brandon's textual evidence (Figure 7) demonstrates that he understood the information in the article. He answers right-there questions and his response includes textual evidence through his summarization of the text.

Name: Brandon N. Question: Helping in Haiti

1. Where is Conrad going at the beginning of the story? Date: January 26th, 2011
he is taking a plane
to go to Haiti.

2. The destruction from an earthquake is a problem for Haiti. What does Conrad do to help solve this problem?
he helps habitat build new
homes for the people caught
in the earth quake

3. Conrad is nervous about traveling to Haiti. Support this statement with evidence from the story.
he is nervous because he
was gripping his knuckles on
the metal bars.

4. Why does Conrad want to go to Haiti?
to help out the people
there who got stuck in the
earth quake and lost their
homes.

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Figure 7: Brandon's written response

Think-aloud interview. Prior to the start of the interview, Brandon used his assignment sheet to self-guide his tasks to complete. During the interview, Brandon used the same think-aloud strategy modeled by his teacher when reading printed text to share his thoughts reading a nonfiction article online. Brandon's first task was to open the teacher webpage, locate the TweenTribune homepage, and read the article of the day. Next, students had to answer questions directly related to the article. Finally, he had to complete a search task about national parks of his choice with the option later to create a product related to his research findings. Brandon did not have any questions about the think-aloud process or the tasks. He required little guidance to open the teacher class page and locate the TweenTribune website. As soon as he opened the site and clicked the article, Brandon scrolled down to the bottom of the article and back to the top. He began to read the article aloud and summarized aloud what he was thinking: "so like people

expected to be calm and peaceful like some things can go wrong as people get aggressive and they make uhm things go bad.” As he read, he continued to pause, summarize, and reread chunks of the text. Brandon spent minimal time decoding words that were unfamiliar. Brandon periodically stopped to make meaning of the text, and shared, “so like this means that some things are bad.....their trying...so like their glad that people are interested but it’s also getting hard to preserve iconic mountains.” He focused more on enunciating words, pausing and stopping until feeling comfortable to move on. Brandon, a fluent reader, did not struggle with many words during the interview but he did struggle with a particular word and sounded out the word *perpetuating*: “Perpetua...perpetuating uhm and to ensure our visitors has a best kind of and safe experience...try to surpass 300 million.” Brandon stated, “So like people expected to be calm and peaceful like some things can go wrong as people get aggressive and make things go bad.”

In his think-aloud, Brandon made meaning of the text. He said, “That means that some things are bad, but they are trying...it’s kind of getting hard to preserve iconic mountains since a lot of people are going there.” This example shows Brandon constructs meaning and makes sense of what he is reading by pausing and thinking out loud about the issues concerning the preservation of iconic mountains. During the task where students are asked to answer questions about the text, students reflected on how they engaged with the informational article as they read aloud. The students made suggestions to themselves about an alternate reading strategy that might have supported their thinking. For example, Brandon said,

I kind of got that wrong because *occurred* is kind of like a word that gets your attention...so I kind of got it mixed up with something else. It says right here a

record-breaking three-year stretch. I think I missed that I read a different paragraph...so I needed to look more to see if there were any more clues about the record-breaking visitation...yeah so I need to do that.

Often, Brandon recognized that he could use a different reading strategy such as looking deeper for clues to help support his understanding of what he read. During the think-aloud interview, Brandon's choice to go back in the text helped him to better understand why he chose the incorrect answer. He said, "Well I'm going to go back to the text and look at that...it says in paragraph five, the national park service launched a major marketing campaign to celebrate its 100th birthday that was in 2016." He added, "It says the correct answer is three years in a row...let me go back in the text to see if I missed anything...I came back to the text." Brandon paraphrased after every two to three sentences using chunks of text to break down his understanding. He explained his interpretation of what was going on. He said, "What I see is they're leaving like the Rocky Mountain Park kind of dirty but they're not well breaking the rules of it." He continued to break down chunks of text while continuing to summarize what he read. Brandon recalled, "What I see in this paragraph is it's like a helping hand to get more people to come and they want even more people...they want to surpass 300 million again even if there's not a record...so make it even better." Using the skimming for information reading strategy more, Brandon shared, "As I'm skimming through the third section of the story, it says the government could not buy if for national park use because...as they made it a park, they wanted to build the park as we're seeing the first superintendent want to make the park famous along the way."

The next task responses from one student *using textual evidence* to help support his answers for the multiple-choice quiz. Brandon shared, “I want to go to my text, look at it first [searching, scrolling through the text] it’s probably up here [he reads the text aloud] parking lots can fill up at 9 a.m. shuttle service are also crowded...no that’s not it.” Brandon went back in the text to look for more details. He said, “So, I’m taking the quiz and going back in the text to see if there are any details to help me with the questions.” He toggled back to a prior screen to search for textual evidence to support his answer choice. Additionally, Brandon shares, “Well, I’m going to go back to the text and look at that...it says after paragraph five...the National Park Service launched a major marketing campaign to celebrate its 100th birthday that was in 2016. The campaign included free passes to every 4th grader and their families that renewed attention and coupled with reasonable gas prices, said Jeffrey Olsen.”

Brandon displayed high levels of engagement when summarizing what he read. He stopped after reading aloud a few sentences at a time and shared aloud what he read in his own words and sometimes repeated the text verbatim. He shared, “I’m skimming through the text...it says that the park strides through historical structures and landscape” and “I’m seeing a lot of bolded...I see a lot of mountains with trees and mounds of rock I guess...as I’m skimming through the text, I see in the 1800’s early 1900’s that most presidents tried to make the great smoky mountains a national park because since a lot of mountain got people’s attention.” Brandon read the textual evidence aloud to demonstrate that he was able to find text evidence to support his answer choices. Directly reading from the article, he stated, “Overall visitation to national parks is on track to surpass 250 million in 2016.”

Researching a topic online. During the third task, Brandon searched for additional national parks using Google as his starting point. He summarized aloud during the search and shared, “So it’s saying that the Rocky Mountain didn’t do that well because there’s too many people that want to go but it’s kind of like limited space for all those people to come in the park...that’s all its saying...I want to do the great smoky mountains.” After Brandon summarized facts about the Rocky Mountains found on a site, he realized he didn’t have enough information, so he continued his search on another site. He silently read texts on the screen, paused after reading chunks of text, and shared aloud, in his own words, facts from the article. Brandon scrolled down the page to view the text prior to reading the article online. While researching, Brandon used Google as his first search engine. As he searched for a national park to read about, he took a random quiz online. Finally, Brandon chose the Great Smoky Mountains (Figure 8) as a place to research. He clicked the article and began to read sharing aloud, “I see a lot of bolded...I’m skimming through the text... I can see that most presidents tried to make the Great Smoky Mountain a national park since it got a lot of people’s attention.”

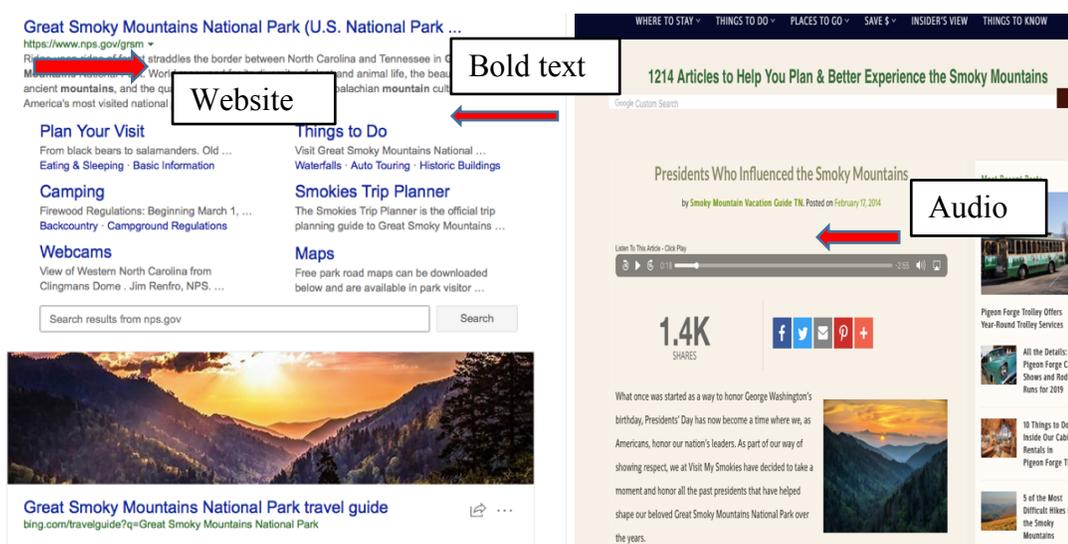


Figure 8: Brandon’s Google search

Survey. At the end of the interview, Brandon completed an online inventory survey to reflect and share how he read and searched for information online. The survey revealed that Brandon looks at the overall view of the text before he begins to read, paraphrases the text, and visualizes or pictures in his mind the things he read online.

Case Study 2: Chase, a High Performing Reader

Chase is an eleven-year-old Hispanic male. He is a constant reader and completes the work that he supposed to do in language arts class. Chase works independently and does not like to work in groups during class assignments. When he turns in his class work he is surprised by the acceptable scores he receives. Ms. Riley states that “Chase is shocked” about the good scores he receives because his multiple-choice scores do not reflect his written work. Chase is not a good test taker; however, his classwork meets the expectations of the daily lessons. His overall grade in language arts is 89%. He is also a compliant student. For example, he is consistent in turning in class work and he studies to prepare for in-class assessments. Chase exhibits reading deficiencies on state tests. He is very organized and works hard, which makes up for any reading deficits he may have exhibited on prior end-of-year assessments. He enjoys sports and socializing with his friends. Ms. Riley has made many attempts to invite Chase’s parents in for a conference about his in-class performance and formative assessments; however, her attempts have been unsuccessful. Ms. Riley shared, “Chase’s parents are not active in his school academics.” Based on Chase’s parents not attending parent teacher conferences or returning phone calls, Ms. Riley has drawn a conclusion that Chase’s parents are not checking in on his progress in language arts.

Class observation. The teacher’s process for the lesson was the same as with Brandon; however, the teacher-student interactions were different. Chase entered the classroom and was chatting with other students as he settled for class. He chose not to sit directly in a group but next to a small group. Chase worked through his copy of the article while Ms. Riley modeled reading strategies to help students with navigating print informational texts. He annotated the text (Figure 9) by highlighting important facts and creating small t-charts of who and what in the margins for each paragraph. This demonstrated Chase uses a chunking the text to break down information. Chase quoted the text using appropriate quotations and the correct evidence (Figure 10). Ms. Riley said, “Chase shows his work and does well on most assignments that require a written response.” Ms. Riley called on Chase to summarize the third paragraph in an article “Helping in Haiti” by ReadWorks. Chase paused to scan the paragraph after it was read aloud then he stated, “When Conrad was a senior in high school he saw the earthquake in Haiti...he wanted to go help and had the chance to go to there when his father met a woman there.” He summarized informational print texts using a think aloud process.

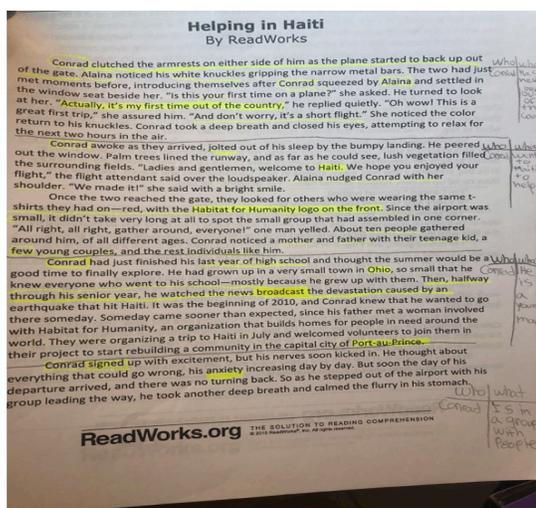


Figure 9: Chase’s text annotations

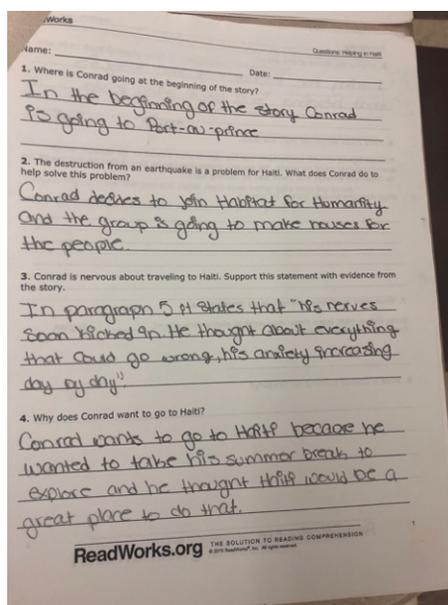


Figure 10: Chase's written response

Think-aloud interview. Chase demonstrated his ability to summarize and analyze the text, stating:

I think they are going to put a daily visitor limit because it's getting overcrowded and some people have waited for at least a day...some people who haven't waited that long have just got in and it's not fair for other people, so they put that visitor limit so like they have to wait that other day just to get in.

As students read online, they reflected on reading strategies that influenced their answer choices. While Chase reflected on his answer choices during the check for understanding quiz, he shared, "I think they said another year because I only remember 2015 and 2016, so I got mixed up and I think I was right. It couldn't be five years or four years, but it was actually three years in a row and maybe at the end of 2016, they sat that record and maybe that's why I got that answer wrong."

Chase showed that he preferred to use his memory to answer how many years, choosing not to look back in the text for the evidence to support his answer choice.

Not only did Chase recite facts from the article, he added his opinion about the fairness of the park's rules, stating, "I think they are going to put a daily visitor limit because it's getting overcrowded and some people have waited for at least a day...some people who haven't waited that long have just got in and it's not fair for other people so they put that visitor limit so they have to wait that other day." Also, Chase added, "So when I just read that line I think that this park is actually at least bigger than the other ones and this park is actually in California which I didn't know." Chase not only summarized the article, but he acknowledged that he learned new information. While reading online and during his think-aloud interview, Chase did not toggle back to the prior screen to look at the article. He answered the exit ticket questions and he relied on what he remembered in the text. Chase said, "So I remember in the article it said it was celebrating its 100th and the options are 275, 150 and 100 so I pick 100 and I got two out of three right." He did answer the question correctly by remembering details from the article without returning to the text.

Chase demonstrated that independently reading a short article online within his reading range does not always require him returning to the homepage to answer questions about the article. He used what he remembered about the text to answer the question and moved on.

Researching a topic online. Chase used Google search engine (Figure 11) to locate information on national parks. He typed "national parks" in the search engine. Next, he scrolled down the screen to click and view pictures and read subtitles. He claimed, "if you read online the word is underlined and you can click on it and it gives you a lot of knowledge and it has pictures." For example, Chase said, "When I research

I put national parks” as he gets more specific and narrows it down using the browser and typed “national parks”. He chose “famous national parks” in the United States.

Specifically, he chose Redwood National and State Parks, clicked the first links on the screen and explained, “I read the headers, then the pictures. I started reading and I found out that...”

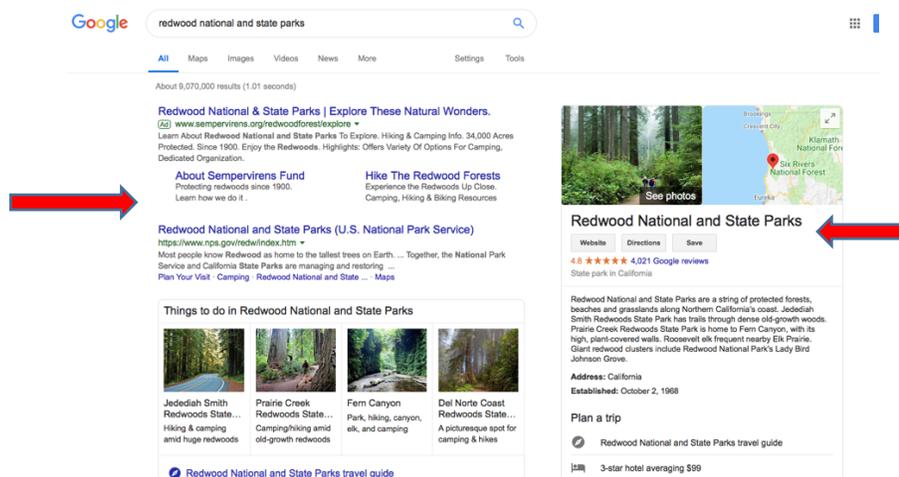


Figure 11: Chase’s Google search

Guided by his understanding of website structures (i.e., headers, hyperlinks and search bar), Chase made purposeful and effective selections about what he wanted to read and learn more about.

Survey. At the end of the interview, Chase completed an online inventory survey to reflect and share how he reads and searches for information online. The survey revealed Chase thinks about what he already knows to help him understand, reads slowly and carefully to understand, stops occasionally and thinks about what he is reading online.

Case Study 3: Jessica, a Low Performing Reader

Jessica is an eleven-year-old black female. Ms. Riley shared some insight about Jessica's parental involvement in her educational experiences, stating, "Jessica's parents have not responded to a request for a parent conference." Ms. Riley continued to state Jessica is not as compliant as other students are when responding to classroom norms and procedures. Ms. Riley said, "Jessica is excited about coming to school." Her overall grade in language arts is a 61 percent. During the post interview, Jessica shared with the researcher that she does not read much at home. Jessica said, "Reading alone at home is boring". She says she mostly read during school hours. Jessica stated, "I only read when I am at school." Ms. Riley shared that Jessica's current grades in reading displays high-level reading abilities and that she has the potential to be an above grade level student, but Jessica's classwork does not always demonstrate her best work. She reluctantly responds to prompting by her teacher to read in class. This behavior is displayed in most of her other classes as well. Jessica values her social life. Ms. Riley and her team has invited her parents for parent conferences to discuss collaboratively how to improve Jessica's reading performance; however, Ms. Riley stated, "Jessica's parents have not met with her teachers" before the time period of this study.

Classroom observation. Jessica seemed quiet when sitting with her reading group. She did not voluntarily contribute to the discussion about the Haiti article. She participated in the roundtable discussion when it was her time to share. Figure 12 shows Jessica highlighted a few words during the Haiti article class read aloud without annotations. She summarized during the think-aloud without taking notes in the margin. Next, students were asked to answer the questions about the article. Jessica did answer the questions with details. Her responses demonstrated that she comprehends what she

read. Jessica transferred these skills to a think aloud when she read online. She provided specific details about the information she read in a think aloud. Her written responses for print informational texts (Figure 13) revealed Jessica is able to find and support her answer choices with evidence. She also demonstrated finding evidence in her online discussion about the article she read.

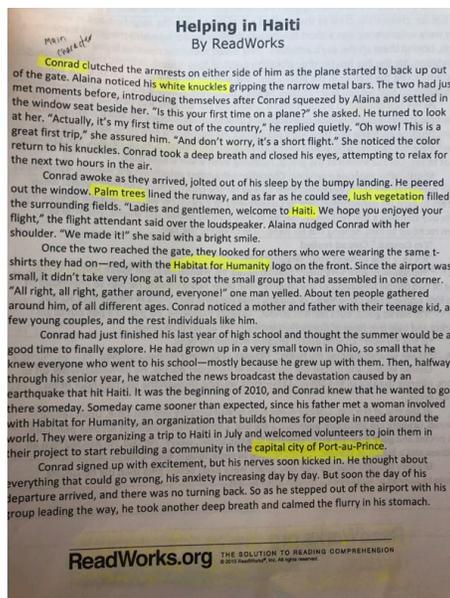


Figure 12: Jessica's text annotations

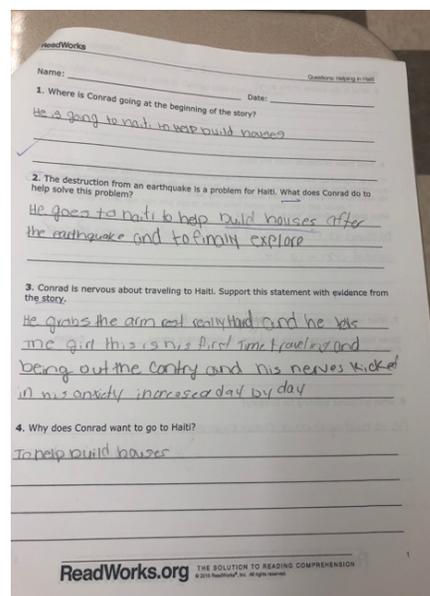


Figure 13: Jessica's written response

Think-aloud interview. Jessica described her summary of a section of the article by stating, “I guess the park managers and the staff that work the Zion National Park they love their job and they try to do what they can to make sure that people still come and that they have a good review” and “so I guess they have a very high visitation because it’s such a good park overall.” The second theme that emerged surrounds the students’ use of *inferencing skills* to make sense about what authors imply. Students use what they read and their prior knowledge during the think-aloud to comprehend texts. Jessica inferred that park managers love their job after she read aloud all the things that visitors do during a visit to the park. She said, “I guess the park managers and the staff that work

the Zion National Park they love their job and they try to do what they can to make sure that people still come and that they have a good review”.

Similarly, Jessica seemed to remember more details about her answer choice. She stated, “I got that answer because I remember when they said like they were trying to limit the people that were coming to the park and having to park in parking spaces and they said that people had to wait for hours just to come through the gate.” Jessica was able to explain her rationale for her answer choice. Jessica recognized words visually, but she struggled with several words throughout the article. She stated, “I know the word, but I just can’t say it and their uhm feelings about the park.”

Jessica demonstrated her understanding of the big ideas in the article when she made an inference about the animals: “So, they try and keep their visitors safe because its animals and you are trying to get closer and the animals probably gonna feel like you are trying to hurt it...so it’s probably going to hurt you...so that’s why you have to be very careful. They’re trying to tell people to take safe selfies.”

Jessica’s statement about how the animals may feel about visitors shows she had prior knowledge about the actions of animals in conflict with humans.

Jessica continues to make sense of what she read as she paused between reading lines from the article aloud. She constantly stopped to say, I guess as an indicator that she was putting information together that helped her to comprehend. For example, she paused four times between four sentences and shared “So, I guess they are pretty popular because they’re like number one for visits and the other ones pretty good parks, but a lot of people go to them but not as much as they go to the Zion National Park.

Jessica is constructing knowledge and making sense of online text as she read aloud the article.

Additionally, Jessica shared, “So I guess they didn’t have very many people coming to the park and it was great business for them and Yellow Stone when they hit 4 million visitors in 2015.” She continued, “So, I guess they have a very high visitation because it such a good park overall.” Jessica is critical of how she answered a question during her check for understanding realizing that she did not pay attention to the details in the article and she said, “I should have thought to put a little bit more thought into that one instead of just going with just the numbers that I seen...and just clicking on the two years just because I seen 2015 and 2016 and so I should have paid more attention.” Additionally, Jessica suggested to herself to self-pace as she read for information by stating, “Read at a steady pace to make sure you get it so that’s what I did to make sure that I got it and that I understood the words that I was reading.” Jessica was reflective about the reading strategies she chose to help her understand words in the article. She realized that slowing down and reading at a steady pace gave her time to process meanings of words.

Researching a topic online. Using a Google search (Figure 14), Jessica typed “national parks in the United States.” She looked at the visuals and read the captions scrolling down the page. She paused to read aloud different parks in bold. She confirmed that she learned new information from the articles stating, “They gave more details than a book.” She chose to research Yellowstone National Park using the hyperlinks listed on the first screen in a Google search.

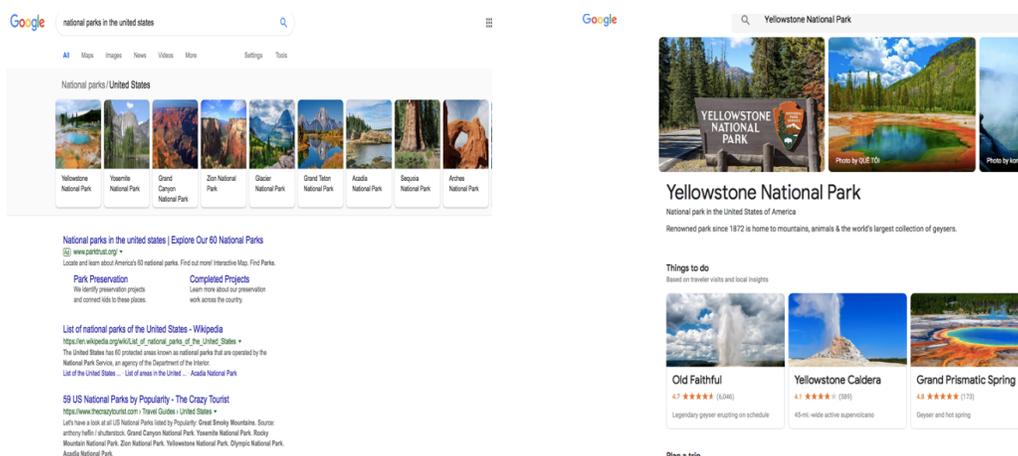


Figure 14: Jessica’s Google search

Additionally, as an extended assignment, she created her version of an infographic that explains new information she learned about Yellowstone National Park.

Guided by her understanding of website features (i.e., bold print, pictures and captions), Jessica demonstrated a basic understanding about how use a Google search to find a national park that she was most interested in based on her understanding of how to navigate features of informational texts online.

Survey. At the end of the interview, Jessica completed an online inventory survey to reflect and share how she reads and searches for information online. The survey revealed that Jessica tries to get back on track when she loses concentration, and paraphrases what she reads online.

Case Study 4: Kim, a Low Performing Reader

Kim is an eleven-year-old Hispanic female. According to Ms. Riley, Kim displays the characteristics of a good student overall; however, she is often off task. She is easily distracted by other students who talk a lot sitting near her. Ms. Riley shared, “compared to her peers in the same classroom, she scores lower on tests and class quizzes. She struggles with speaking or reading aloud. When she does read aloud, she

reads slowly.” During the think-aloud interview, she read very fast—often stumbling over words. During the post interview, she shared that she loves to read fiction because she is able to visualize what happens. She attends tutoring sessions on Fridays with her language arts teacher. According to Kim, she wants to do well in class; however, she is concerned about making friends and wants the acceptance of her peers. She has expressed that “reading is not” her favorite activity. Kim’s mother communicates with Ms. Riley with concerns about Kim’s grades in reading. Her overall average in reading is a D (64%). She scored a 28% out of 100% on the Fall Measure of Academic Progress (MAP) assessment and ranked in the 14th percentile on her 5th grade end-of-grade test in reading. Kim’s Online Reading Strategy Inventory (ORSI) responses support that she prefers to read fiction because “fiction stories are mostly funny.” She shared when she is reading online, “I don’t underline or highlight the important details; all I underline is the answers to the questions.”

Class observation. During the class observation, Ms. Riley spoke to Kim and modeled with her personally how to reference the text for support. Ms. Riley shared, “most of the time Kim will avoid answering questions that require textual evidence, I usually sit her with a partner for help.” As Ms. Riley read aloud, Kim made annotations (Figure 15) throughout the article in the margins, which is a comprehension skill Ms. Riley requires all students to do; however as evident in Figure 16, Kim has trouble providing evidence for a question. For example, question number three asks for a support statement about Conrad’s feeling about traveling. She skipped that question and moved on to the next one which did not require evidence.

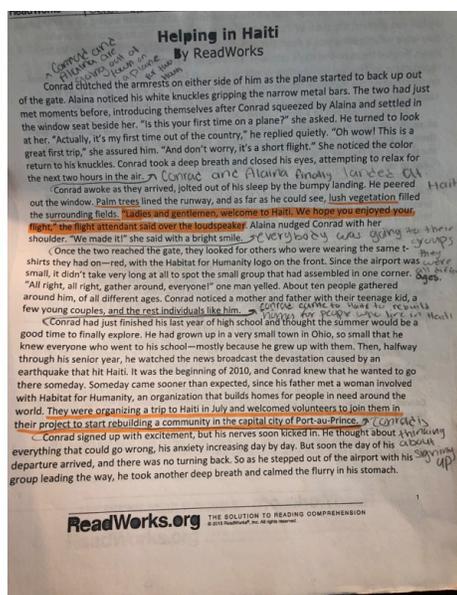


Figure 15: Kim's text annotations

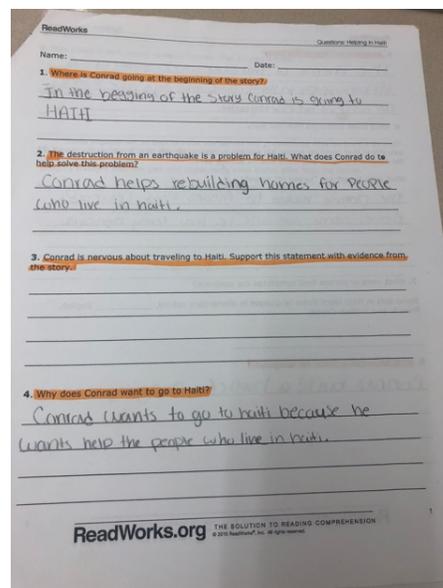


Figure 16: Kim's written response

Think-aloud interview. Similarly, during the think-aloud, Kim demonstrated her ability to retell facts in her own words, a common reading strategy used when students read printed text. Kim shared aloud, “in this paragraph it is talking about that they give a free pass to every 5th grader and their families and that they are celebrating a 100th birthday of this park and they said that this was basically about Jeffrey?” She read aloud this part of the text: “this park was mostly to have forty people a day but instead it brought two hundred people a day...more people are taking dogs on trails.”

Kim made an inference about the park attempting to keep visitors safe. She shared, “They’re trying to tell people to take safe selfies.” Kim was able to identify the main idea demonstrating her understanding of key ideas in the article. Below Kim states the main idea:

The main idea of these two paragraphs are about that sometimes when people go to this place it creates good and bad news and they are good and bad news to the managers. Their place increases how interesting it is but they are also struggling

to preserve iconic mountains, canyons and wildlife habitat for the future generations. This leads to problems with entire staffing levels.

Kim identified the main idea as this is a reading concept discussed in every text she reads in class for print and non-print texts. Additionally, when Kim read aloud, she struggled with a word. Kim attempted to sound a word and said, “Our number one goal is to preserve the park and per-pen-sity.”

Kim was not as engaged with this reading tasks as she shared, “I don’t read the caption, I just look at the picture.” Kim demonstrated that not all the participants engaged in all information presented on each website. Kim moved on to the quiz and began to read the questions aloud and choose answers for each. Kim struggled with question three and avoided the answering the question.

Kim confirmed she lacked understanding of some information in the article and shared, “I was reread something...that part because I didn’t understood...I didn’t knew what I was reading at first because sometimes I have to reread the passage.” Kim was self-aware of information she did or did not understand when reading. She used the reread strategy to help her better understand. Summarizing appeared in the data as high-frequency more than any other reading skill on the survey and Kim summarized quite often throughout this process. Kim read aloud then shared, “It’s talking about they should be careful with their selfies because the people really like to have a great selfie, so they try to get closer and close but once they get close that can be dangerous.”

Researching a topic online. Kim used Google (Figure 17) to browse for a national park. She narrowed her search by typing “the best national parks in the world”. She viewed the long list of hyperlinks that appeared on the screen and furthered narrowed

her search by typing “the Grand Canyon”. She began reading in a low voice. Kim explains facts that she skims to find, such as, “2000 mile and 1 mile deep”. After skimming the page for about three minutes, she entered a new search “national parks adventure” and she shared, “There are no words.” Therefore, she described the pictures and made inferences about the picture. Kim realized that the search for national parks yielded a wealth of information and a plethora of sites to choose to read.

During Kim’s post interview, she shared, “I make up my own strategies, I don’t do chunking if it is short. I will continue reading, then, hook passages together. In reference to books versus reading online, she prefers reading fiction the most because they are funny, and she likes to picture what is going on. Kim’s reflection indicates that when she read online, visuals to helped her make sense of the information.

Survey. At the end of the interview, Kim completed an online inventory survey to reflect and share how she reads and searches for information online. The survey revealed that Kim reviews the length and organization of the online text, tries to get back on track when she loses concentration, and visualizes or pictures in her mind the things she read online.

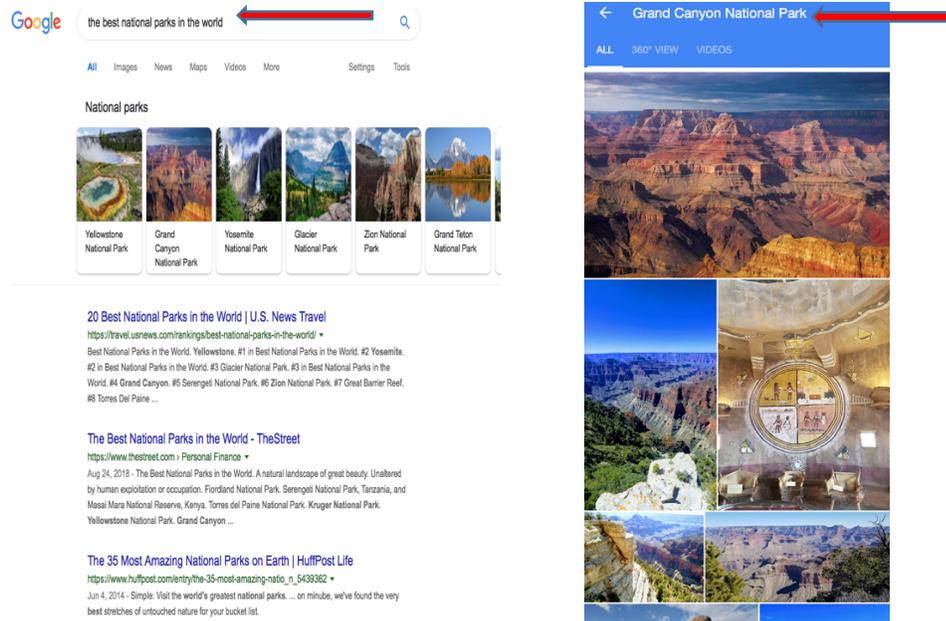


Figure 17: Kim's Google search

Case Study 5: Maria, a Medium Performing Reader

Maria is an eleven-year-old black female. Ms. Riley describes Maria as an attentive learner and eager to learn. Ms. Riley said, “Maria raises her hand in class to answer questions and asks questions about future assignments.” She consistently tries to read texts despite struggling to comprehend what she reads. Maria often struggles with multi-step directions, although she is aware of the fact that she is often behind or underperforms in reading at times. Compared to her classmates, she does not give up and continues to try to understand. Ms. Riley said, “Maria has to retake tests when she scored below a 60%.” Maria averages a 76% (C) in Language Arts class. She scored a 28% out of 100% on the Fall Measure of Academic Progress (MAP) assessment and ranked in the 40th percentile on her 5th grade end-of-grade test in reading. Maria's response to the Online Reading Strategy Inventory (ORSI) said she reads slowly and carefully to

Maria added her opinion that parks are good based on what she felt and read. She said, “Sometimes the parks are good, but when there’s more people coming, the parks are crowded, and stuff happens...people misbehave, and some people get headaches.”

Maria reflected on why she lacked understanding during the first read by sharing, “The strategies I used were when I didn’t understand it, I would try to say it again or I would reread and if something I didn’t agree with wasn’t there here, I don’t think I would understand this at all or wouldn’t think I could say or talk about what story or passage is about.”

Think-aloud interview. It was very evident that Maria transferred reading strategies she used when reading print text to reading online. She used the same skill of looking back in the text to clarify what she read by toggling back to the home screen where the original text resides. Maria used a familiar reading strategy, *making connections*, while pausing and sharing aloud how what she read connects to another text or personal experience. Maria clicked on the article link and scrolled from top to bottom scanning the length of the article. She said, “I scrolled down. I read over the text before I actually read it.” Maria found the article interesting because she remembered a project she did on a National Parks in another class. She explained, “I did a project on a national park and me researching all of this made me feel that I could have did better or I could have went to more websites.” Maria used her personal connections to help her make sense of what she read. During the think aloud, she needed a lot of prompting to share aloud what she was doing. Maria confirmed that when she is reading, she does not stop to think about what she is reading, stating, “Sometimes, I take a break to think of what I’m reading because lots of times I do not do that.” During this read aloud, Maria

became self-aware that she needs to stop and reflect at some point during reading to ensure she comprehends what she read. A few times, Maria questioned the text, asking, “Why would they only give free passes to the 4th graders and their family and why wouldn’t they give it to either the whole school or just all grade levels?” She spent a significant amount of time pronouncing words, for example, “scretch” restated to “stretch” and sounding the word per-per-tuity. She would quickly move on and continue reading. Maria expressed that pictures matter as she prepared to search for national parks online. Maria better understands what she reads when visuals accompany the texts.

Researching a topic online. Maria opened the first tab to the right at the top of the computer screen. Maria used Google (Figure 20) to search for national parks. She clicked backwards and forward to various websites. She read the Google results. She said, “I’m going to Yellowstone National Park service website.” Maria used navigational skills as she searched for national parks. Next, she clicked the service park website and clicked the backwards tab, making a connection with the current text and the Google search results. Finally, she chose Wikipedia and said, “that was interesting.” Maria had some background knowledge from a prior assignment where she searched for information on national parks. Maria’s previous background knowledge of national parks guided her toward making a navigational decision to click on the link service website. She justified her choice of the hyperlink with this statement, “I did a project on a national park.”

During the post interview, Maria expressed, that she is able to reread online by “scrolling up and down text.” Additionally, Maria shared, “I don’t like the part where we can’t highlight specific words or things we don’t know in the text, but I like that we can reread on anything.” Highlighting print texts is a commonly used reading practice to help

a reader emphasize information they may need to refer to later. Maria knows she needs this feature when reading online to mark words and phrases that she can go back and reread.

The image shows a Google search for "yellowstone national park" and the resulting Wikipedia article. A red arrow points from the search bar to the Wikipedia article title.

Google Search Results:

- Search query: yellowstone national park
- Results: About 48,900,000 results (1.19 seconds)
- Top result: **Yellowstone National Park (U.S. National Park Service)**
 - URL: <https://www.nps.gov/yell/index.htm>
 - Summary: Visit Yellowstone and experience the world's first national park. Marvel at a volcano's hidden power rising up in colorful hot springs, mudpots, and geysers.
 - Plan Your Visit: Eating & Sleeping - Basic Information - Lodging - Apps - ...
 - Maps: The free NPS Yellowstone National Park app includes an ...
- Second result: **Yellowstone National Park - Wikipedia**
 - URL: https://en.wikipedia.org/wiki/Yellowstone_National_Park
 - Summary: Yellowstone National Park is an American national park located in Wyoming, Montana, and Idaho. It was established by the U.S. Congress and signed into law ...
 - History: [Geology](#) - [Biology and ecology](#) - [Forest fires](#)
- People also ask:
 - What is the best time to visit Yellowstone National Park?
 - How long does it take to drive the loop in Yellowstone?
 - How much does it cost to go to Yellowstone National Park?
 - Which part of Yellowstone is the best?
- Yellowstone National Park.com - Information and Travel Planner for ...
 - URL: <https://www.yellowstonenationalpark.com/>
 - Summary: Visitor information and planning for Yellowstone National Park. The first national park and a favorite destination to millions of visitors each year. Yellowstone has ...

Yellowstone National Park (Wikipedia Article):

From Wikipedia, the free encyclopedia

"Yellowstone" redirects here. For other uses, see [Yellowstone \(disambiguation\)](#).

Yellowstone National Park is an American *national park* located in [Wyoming](#), [Montana](#), and [Idaho](#). It was established by the [U.S. Congress](#) and signed into law by President [Ulysses S. Grant](#) on March 1, 1872.^{[5][6]} Yellowstone was the first national park in the U.S. and is also widely held to be the first national park in the world.^[7] The park is known for its wildlife and its many [geothermal features](#), especially [Old Faithful](#) geyser, one of its most popular features.^[8] It has many types of [ecosystems](#), but the [subalpine forest](#) is the most abundant. It is part of the [South Central Rockies forests](#) ecoregion.

Native Americans have lived in the Yellowstone region for at least 11,000 years.^[9] Aside from visits by [mountain men](#) during the early-to-mid-19th century, organized exploration did not begin until the late 1860s. Management and control of the park originally fell under the jurisdiction of the [Secretary of the Interior](#), the first being [Columbus Delano](#). However, the [U.S. Army](#) was subsequently commissioned to oversee management of Yellowstone for a 30-year period between 1886 and 1916.^[10] In 1917, administration of the park was transferred to the [National Park Service](#), which had been created the previous year. Hundreds of structures have been built and are protected for their architectural and historical significance, and researchers have examined more than a thousand archaeological sites.

Figure 20: Maria's Google and Wikipedia search

Maria thought about reading over the articles again and shared, "Well if I would've read that over again, I would have got that correct or if we were able to reread

the passage, I would have did it and I think I would have got it correct.” Maria did not realize that she could click back to the previous tab to reference the article to find textual evidence. Unlike Maria’s reading strategy to refer back to information in a linear print text, she did not use the same strategy when she read the article online to verify her answer choice for the online quiz.

Survey. At the end of the interview, Maria completed an online inventory survey to reflect and share how she reads and searches for information online. The survey revealed that Maria reads carefully and slowly to understand what she reads, tries to get back on track when she loses concentration, and prefers to read informational texts for school purposes only.

Case Study 6: Michael, a Medium Performing Reader

Michael is an eleven-year-old black male. He often struggles to stay on task but thrives when working in small group and one-on-one situation. In class, Michael looks around or stares across the room after a task has been assigned. He can be combative at times; however, if he feels like his teacher supports him, he will work hard for the teacher. He likes to work with his teacher one-on-one and that helps him to work at a steady pace. Ms. Riley described Michael as “able to do the work”; however, he often struggles to stay motivated especially if he feels overwhelmed with the workload. When he is on task and working hard, he completes most assignments. According to Ms. Riley, Michael can be negative about completing his assignment and these qualities sometimes affect his academic success. Specifically, he tells Ms. Riley, “I can’t do it” depending on the tasks. Michael averages an 81(B) percent in Language Arts class. He scored a 59%

out of 100% on the Fall Measures of Academic Progress (MAP) assessment and ranks in the 36th percentile on his 5th grade end-of-grade test in reading.

Class observation. Michael followed along with Ms. Riley’s read aloud of the “Helping in Haiti” article. He used his fingers to follow along each line of the text as it was read aloud. He highlighted words and phrases (Figure 21) in each paragraph throughout the article. Michael used this strategy to emphasize important information that he wanted to refer back to when needed. Ms. Riley instructed students to discuss in small groups their responses to the questions. Michael did not immediately share in the small group discussion, but he did find a moment to explain the information he highlighted and the reason why. He demonstrated brevity in his comprehension responses in the print text (Figure 22). He understood what was happening in the article but did not elaborate with specific details when answering questions.

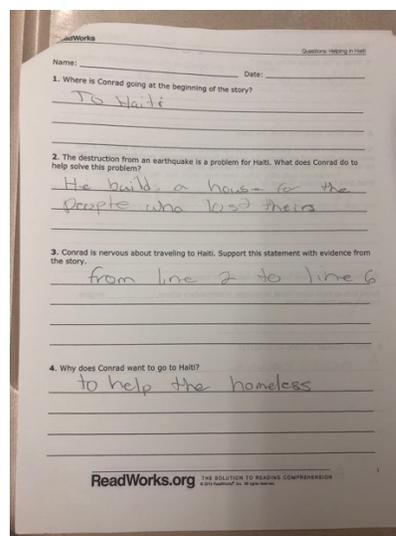
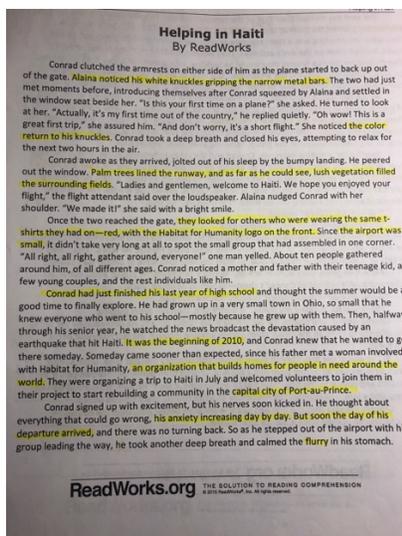


Figure 21: Michaels’ text annotations Figure 22: Michael’s written response
He transferred this reading behavior used when reading print text to reading online.

Think-aloud interview. Michael logged into TweenTribune website, clicked the assigned article and began scrolling up and down the article to see the length of the

article. He required a lot of prompting to share in detail what he was doing and thinking when he read online. He shared that he normally reads without sharing his thoughts with anyone. He read the article in his lowest voice. He made connections with his family's visit to Disney World. As he read aloud, he approached a difficult word and shared, "This is a hard word and I can't pronounce it and I'm struggling." Michael read further into the article and he inferred that park managers are "smart and they are doing good things I guess" based on his interpretation of how park staff handles their day-to-day tasks. Michael made many personal connections with the text and also found the entire article interesting, stating, "I like going to parks like Disneyland even regular parks like Zoos and I like exploring going different places." Michael thought out loud as he pointed to an unknown word: *perpensity*. He asked, "How to pronounce that?" He thought about it for a few seconds and then he moved on. Michael's choice to move on from the word did not hinder his understanding of the information. Next, Michael clicked on the link to take the quiz. He scrolled up and down the screen to read all three questions before he began to answer each one. During the quiz, Michael answered question one with ease. He chose an answer to question number two saying, "I was stuck between less than an hour and more than an hour but through my personal experience, I guessed more than an hour." Because he experienced a long wait to get into a park once before, Michael was able to make a personal connection with the texts. This connection helped Michael to answer the question correctly. At the end of the think-aloud, Michael explained that he "didn't make any sense because it does not make sense."

Michael made a personal connection with the text that increased his understanding of the question and the correct response. Students were *reflecting on their*

reading strategies by sharing aloud the strategies that work well for them as they read for information online. Michael said, “sometimes I take a break to think of what I’m reading because lots of time I do not do that.” Michael stated, “Zion is pretty smart and they’re doing good things I guess.” He referred to Zion using a humanlike characteristic, but during his follow up interview he further explained that he meant the actual staff in the park were making good decisions. Michael summarized by stating what he was learning from the information. He shared, “So far, I’ve learned that last year it was at 100th birthday and also it could be hard to work in a park like this one.” Michael response (Figure 22) to question number three is another strategy he used: listing the paragraph and line where the evidence is located.

Researching a topic online. Michael began task three like the other participants, researching a national park of his choice. He chose Wikipedia (Figure 23) to search for a national park. He explained, “I’m typing in national parks just to see the websites that I can get like Wikipedia.” He was shocked to find so many pictures. He clicked Wikipedia, then counted the graphics. He scrolled down the page to view his options to click and search. He was distracted by an advertisement to book a flight. After scrolling through the first page of the search, he chose to explore parks. He clicked the hyperlink labeled “explored parks” because he said, “It caught my eye and it was the first thing I saw.” While looking at the pictures he said he just want to go there [imagining he was there]. He chose “explore parks.” Michael chose not to read everything on the screen, instead focusing on the graphs and pictures. He clicked the first thing he saw, Yellowstone Park. Looking at the pictures only, he said, “I really want to go there.”

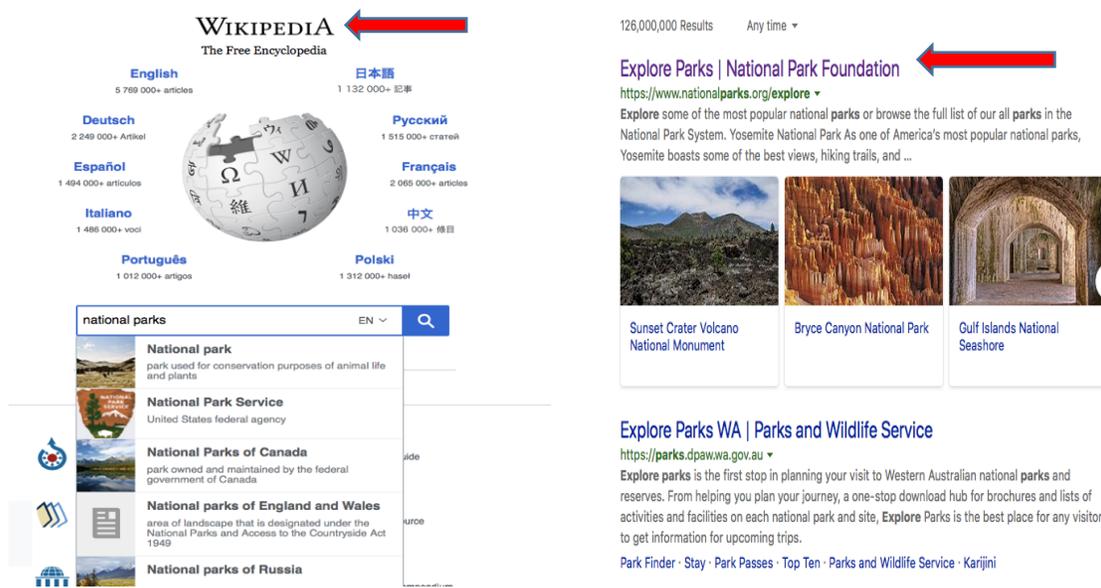


Figure 23: Michael's Wikipedia search

Survey. At the end of the interview, Michael completed an online inventory survey to reflect and share how he reads and searches for information online. The survey revealed that Michael thinks about what he already knows about the topic, sets a purpose for reading, uses pictures and other graphics to help him, and visualizes or pictures things in his mind when reading online.

Online Reading Post-Survey Results

As mentioned earlier, students completed the Online Reading Strategy Inventory (ORSI) survey after the think-aloud interviews to gain insight about what reading strategies participants used when reading informational texts online. This survey provided information regarding students' awareness of the strategies they use when reading online. This survey was designed to facilitate discussions after the interviews. Participants responded by choosing one of five options on a Likert scale ranging from "I never or almost never do this while reading online" one (1) to "I always or almost always do this" while reading online five (5).

The Online Reading Strategy Inventory (ORSI) survey is designed for students to self-report on the online strategies they used while reading information online. This questionnaire was not validated to obtain a reliability coefficient. It was simply used as a comparative analysis of what reading strategies students actually used when reading online and strategies they say help them when reading online. This questionnaire was completed within one class session, or approximately 30 minutes. This is what I learned: the results (Figure 24) from the survey indicate online strategies (usually and almost always) the six students say they use most on the Internet:

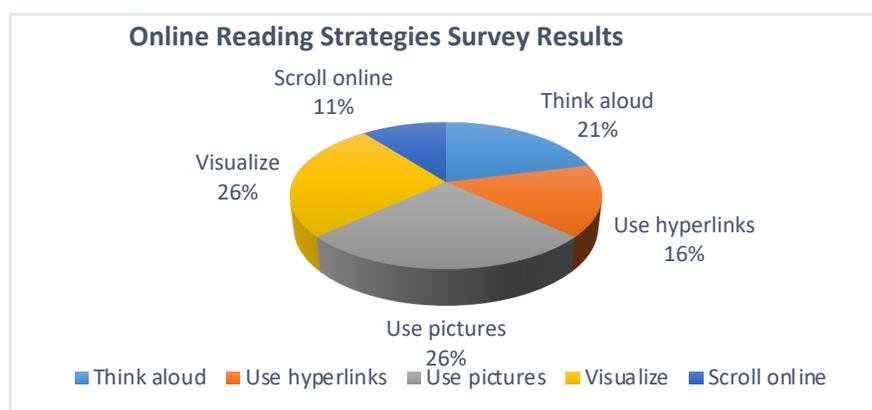


Figure 24: Participants' post-survey results

Using Background Knowledge

Making connections. The strategy *making connections* describes the information that students know prior to reading the texts. Students use their prior knowledge to make connections with new information learned when reading new texts. During class observations, and when students were reading informational texts online, I observed students using what they knew prior to reading the assigned texts with the new information found in the new texts.

Maria made a connection with the article she was reading online with a prior project she completed about national parks. She remembered details from the project to help her make connections with the information she found about national parks. She said, “that was interesting because I did a project on a national park and me researching all of this well.”

Michael read the assigned article in TweenTribune and made a quick connection to the national parks he researched. He explained, “okay, this made me think of just like it says in the text; this made me think of Disneyland because...” This strategy is important for students when reading because they are able to make sense of new information by making connections with what they already know.

From the survey prompt, “I think aloud what I already know to help me understand what I am reading online,” of the six participants, two chose almost always, three usually do and two occasionally. Overall, as shown in Figure 25, it can be concluded that participants vary when thinking about what they already know to help them understand online information.

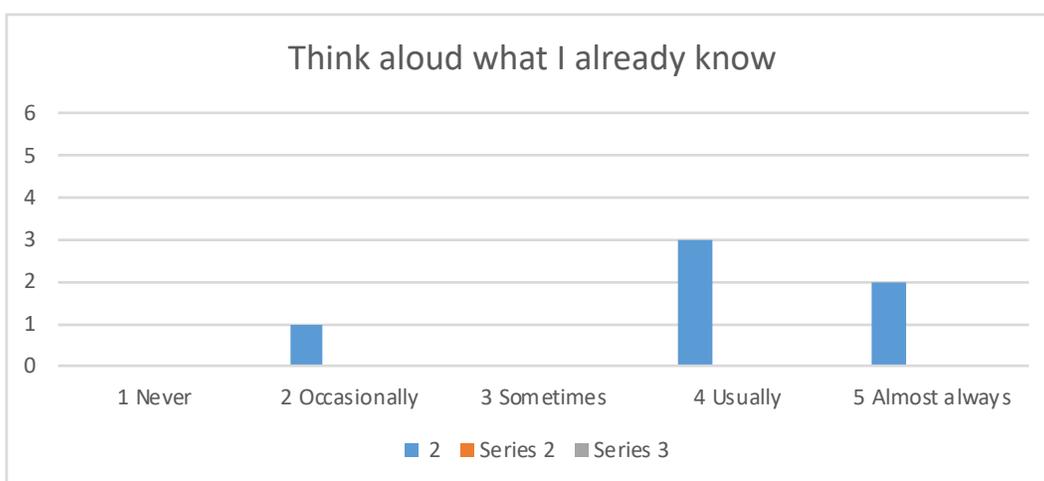


Figure 25: Think aloud what I already know

Locating and Searching: Using Reference Materials

The strategy, *locating and searching*, is a term used to describe when students use links online to help determine the meaning of words or leads them to another website for additional information about a topic. During the think-aloud interviews, I observed students clicking links in the Google search engine and Wikipedia to find information about national parks. During an open search task, Maria began searching for national parks and shared: “I’m going to the Wikipedia to see how many national parks are there...it says United States has 59 protected area known as national parks. It says there are 59 national parks that are protected.” Additionally, Maria reflects on her searching skills as she shares: “I could have went to more websites to see about national parks.”

This strategy is important. When using this strategy, students explore the Internet filled with information for students to choose from and evaluate as critical consumers. Students use hyperlinks when they search for a topic the first time and then have to decide which link provides the most useful and accurate information.

From the survey prompt, “I use the links to reference materials (like online dictionaries) to help me when I don’t understand what I am reading,” of the six participants, three usually do and three do occasionally. Overall, as shown in Figure 26, one-half of participants usually use linked materials and one-half occasionally use linked materials when reading texts online.

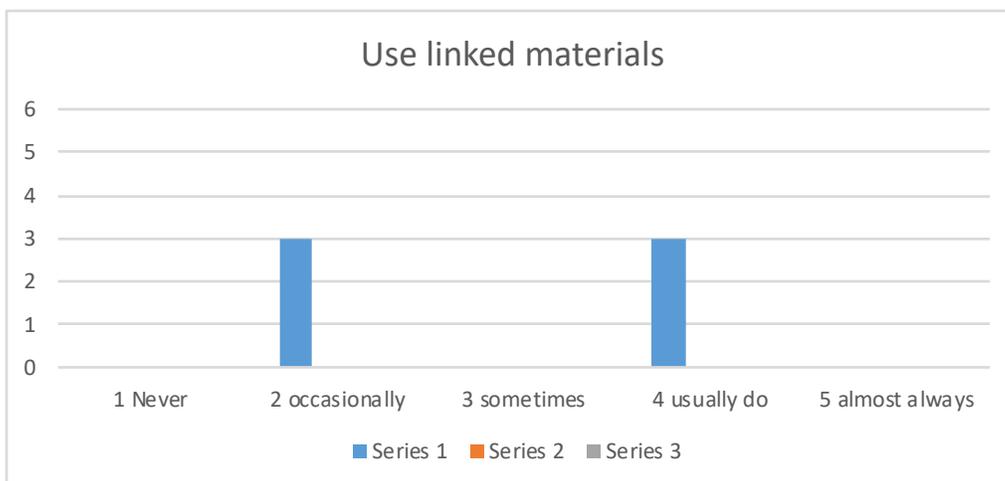


Figure 26: Using linked materials (hypertext, etc.)

Text Features: Using Online Texts Features to Make Meaning

Text features include the components of a story or article that are not the main body of a text. These features include: headings, bold text, sidebars, pictures, captions, and labeled diagrams. Chase viewed the picture immediately before reading the article. He used the visual as a starting point for building curiosity about what the article will be about. Chase shared, “I looked at the picture and I wondered if um that was actually a popular canyon in the U.S. and then when I read it—it actually told me what it was.” This strategy is important because students used bold print and subheadings to break information into parts to make sense of what they were reading. Additionally, students used online text features to locate information.

From the survey prompt, “I use the pictures and other graphics on the sites to help understand what I am reading online,” of the six participants, one said almost always, four usually do and one sometimes does use pictures and graphics to help them to understand when reading online. Overall, as shown in Figure 27, participant responses pose that most of the participants usually do use the pictures and graphics.

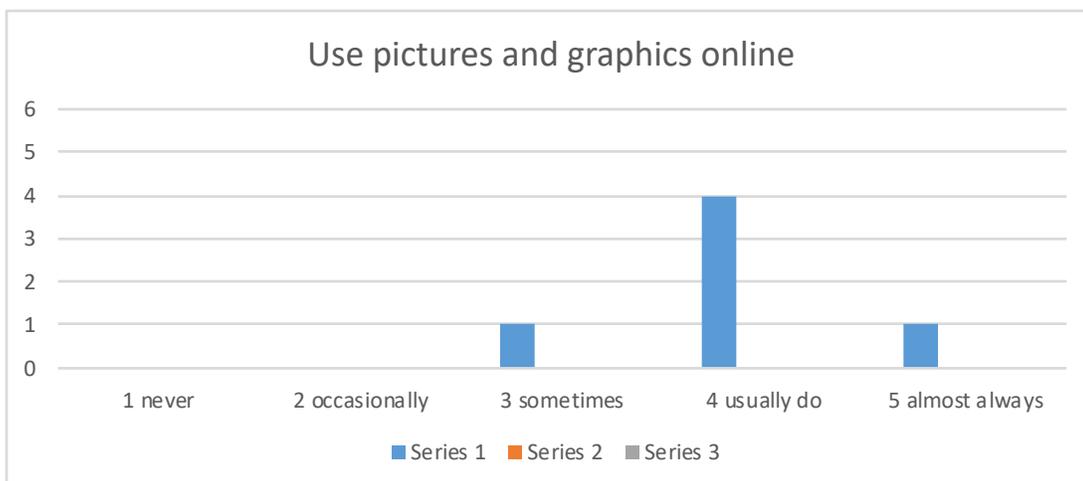


Figure 27: Using pictures and graphics

Visualization: Visualizing Pictures in the Mind

When readers visualize pictures in their minds, they decode, interpret, question, challenge, and evaluate texts that communicate with visual images. For example, during the post interview, Kim said, “I also like reading chapters because I like to picture the image in my head because I read what it’s about and then at the end of the chapter, I will get a sticky note and I will jot down what the passage is about.” This strategy is significant because students sometimes need visual images to help them understand and comprehend particular texts. Visuals are a source of information that support reading comprehension and help students to make meaning of the texts that follows.

From the survey prompt, “I visualize or picture in my mind the things I read online,” of the six participants, one participant never did, two participants usually do, and three participants almost always visualize or picture in their minds the things they read online. Overall, as shown in Figure 28, it can be concluded that participants usually to almost always visualize in their minds what they are reading.

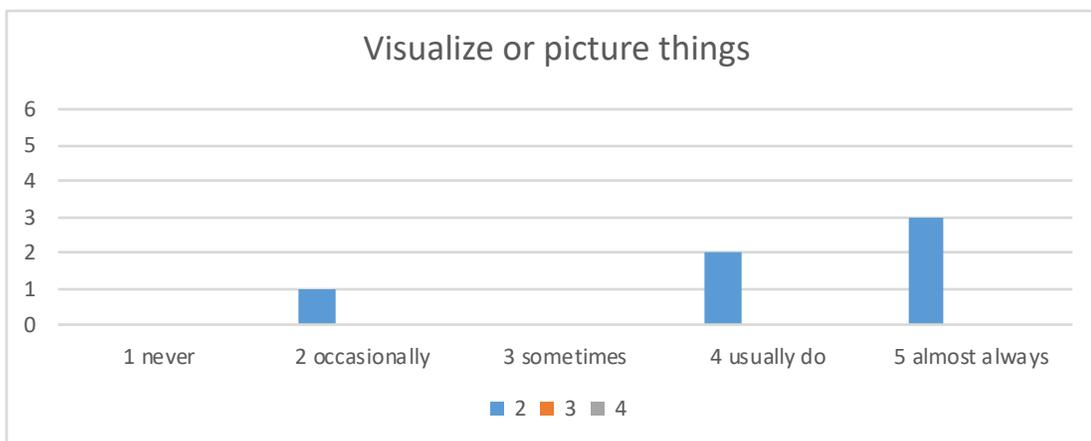


Figure 28: Visualize or picture things

Navigating Webpages

Navigation tools allow a website visitor to experience the site with the most efficiency and the least incompetence. It is a roadmap, which enables webpage visitors to explore and discover different areas and information contained within the website. For example, Kim began to search for national parks using a google browser as she narrowed her search to the Grand Canyon. She explained the fact she found, "...2000 miles and 1 mile deep." She searched again "national parks adventure" and she said, "there are no words" and began to make inferences about the picture. This strategy is important because students need to be able to decipher useful information versus non-useful information efficiently.

From the survey prompt, "I scroll up and down in the online texts to remember and connect information together," of the six participants, one participant never did, one participant did occasionally, two participants did sometimes, and two participants usually did scroll up and down in the online texts to remember and connect information together. Overall, as shown in Figure 29, the participants' responses ranged between never and

usually do scroll up and down in the online texts to remember and connect information together.

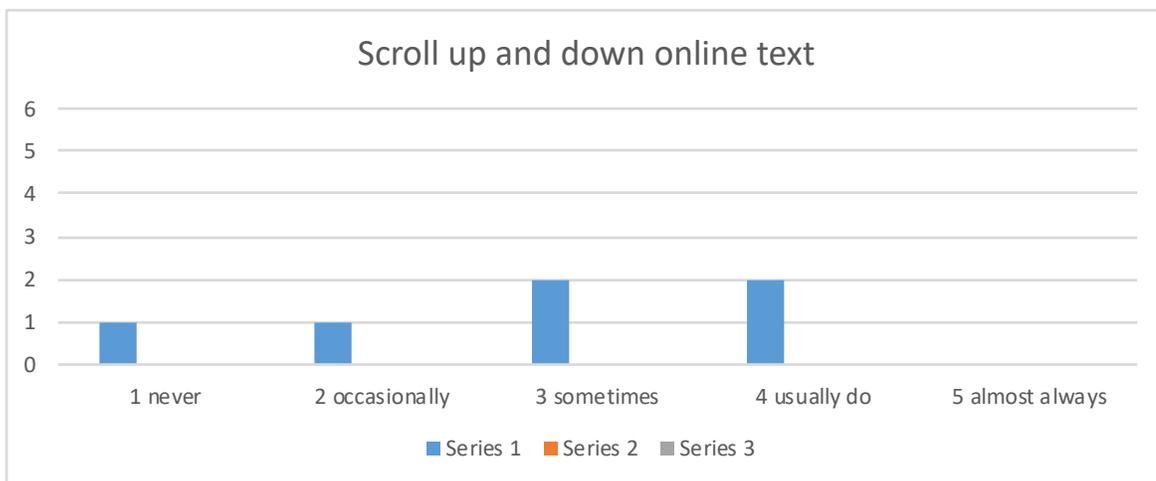


Figure 29: Scroll up and down online texts

Summary

Results from this online reading survey support what happened during the think-aloud interviews with the participants. Participants use these strategies when they read online. These survey questions served as follow up points of conversation during participants' post interviews which helped the researcher understand their reading habits while reading texts on the Internet. This was an opportunity for students to reflect on their reading habits when reading information online.

Themes

This section of chapter four discusses themes that emerged from the data, which included classroom observations, student work samples, think-aloud interviews, and a reflective survey about online reading habits. It helped to gain insight about student experiences reading online and what reading practices they use to construct knowledge.

During analysis of the data, several themes emerged. I designed a think-aloud, open-ended interview (Appendix B) to learn about student experiences when they read informational texts online and what reading practices they used when reading online. As described in chapter three, I used open coding to create themes based on participants' experiences and reading processes. Next, I used axial coding to categorize the open codes into closed codes. Data analysis revealed twenty-three open codes shown in Table 3, which represents what students were doing when reading online. Next, these twenty-three codes emerged into more broader themes among all six participants.

Table 3: Open coding

Open Codes with Definitions and Supporting Data from Interviews, Observations, Post-Interviews

Category	Subcategories	Frequency	Definition	Quote
Comprehension Strategies	Analyzing the text	6	The way students use information to infer what the readers says implicitly	“It really could have been hard, and they had to work for 9 years and they had to work through the war” (Brandon)
	Using memory	13	Students use what they remember when they read without going back in the text to verify	“I was using my memory too because I heard of the Grand Canyon but I heard parts about it...” (Jessica)
	Chunking the text	1	The way a student break down words and text into parts	“I was breaking the word down into chunks to see if I could pronounce...” (Jessica)
	Debating with the text	2	The way students agree or disagree with the text	“What I’m thinking right now is I do agree with them...but I do not agree that they

Decoding Strategies				cannot take dogs..."(Maria)
	Describing	2	The way students retell what they have read	"The picture looks like people are going to a park with mountains and stuff and they are trying to learn..." (Jessica)
	Process of elimination	3	Student rationalize the answer choices they feel are the correct or incorrect answers	"So the question is how many years in a row has visitation to national parks set a record...I know it cannot be two because they said..." (Chase)
	Questioning the text	6	Students ask questions aloud to help them to make sense of the text	"I'm wondering how hard it was and how long it took to make this park a national one..." (Brandon)
	Reflecting on a reading strategy	9	Students think about prior reading strategies that help them to process what they read	"It says the correct answer is 3 years in a row this one...let me go back in the text to see if I missed anything...I came back to the text..." (Brandon)
	Summarizing	24	Students retell in their own words what they have read	"What I see in this paragraph is like a finder park as if it's like a helping hand to get more people to come ...they want to surpass 300 million again..."(Brandon)
	Subcategories	Frequency	Definition	Quote
	Decoding unknown words	11	The way students use syntax skills and syllables to pronounce	"Our number one goal is to preserve the park and perpen-sity."(Kim)

Informational Text Strategies			unfamiliar words	
	Guessing	3	Students make predictions about the text	“Can I have the great guess? My best guess, I think about two years.” (Kim)
	Subcategories	Frequency	Definition	Quote
	Identifying new information	4	Students learn new information about national parks through their choice of search engines on the Internet	“I found out that the Redwood national and state parks have the tallest trees and they have the best walk trails that you can walk...this park is in California and I didn’t know...”(Chase)
	Identifying main idea	1	Students identify the central idea of an online text using text features	“The main idea of these two paragraphs is about that sometimes people go to this place...it creates good and bad news” (Kim)
	Making an inference	12	Students apply what they already know with new information found online	“People are expected to be calm and peaceful and some things can go wrong as people get aggressive and they make things go bad.” (Brandon)
	Making connections with prior knowledge	9	Students read texts and make connections with information they already know	“So this is basically attaching some of this stuff to this other paragraph because this paragraph is dealing about the rules.” (Kim)
	Photo Analysis	3	Students use online visuals to make	Student examines the photo silently (Brandon)

Navigational tools			connections with text	
	Rereading the text	9	Students go back in the text to read again to make sense of the text clicking to locate the information	“Well, I’m going back to the text and look at that...it says after paragraph five...the national park launched a major marketing campaign...” (Brandon)
	Skimming	6	Students browse online text looking for certain phrases or words	“I’m seeing a lot of bolded...I see a lot of mountains with trees and mounds of rocks I guess...as I’m skimming through the text...I can see that most Presidents tried to make the Great Smoky mountains a national park.” (Brandon)
	Subcategories	Frequency	Definition	Quote
	Scrolling up and down the screen	3	The way students use the up and down buttons to jump to various parts of the text	“I scrolled down...I read over the text before I actually read it” (Maria) “I just wanted to look at the text to see how long it was” (Michael)
	Subcategories	Frequency	Definition	Quote
	Wikipedia website	2	Students use Wikipedia to search for information about national parks	“Oh I could go to another one...I’m going to the Wikipedia to see how many national parks are there.” (Maria) “I’m typing in national parks just to see the websites that I can get like

Research Tools				Wikipedia. I betcha Wikipedia...” (Michael)
	Google website	3	Students use Google to search for information about national parks	“I sometimes use Google to find my information.” (Brandon) “I search Google because it’s easy to find stuff.” (Jessica)
	Narrowing research topic	3	Students browse the Internet and search for national parks and choose the specific park they want to learn more about	“So, when I research I put national parks...when I got a lot of results...I just put in more specific than narrow it down, then I click on each link...” (Chase)

These open codes were the first stage in the data analysis process in describing what strategies students used when reading on the Internet. Students used the same and different approaches to reading on the Internet. The interviews revealed that children mostly summarized new information as they read texts online. During the think-aloud activity, participants read aloud the article assigned by their teacher and stopped frequently to summarize what they have read aloud. Another reading strategy that students use often is making inferences. Additionally, students tended to rely on prior information and the texts to infer the authors’ intended meaning when reading print and online texts.

Several themes emerged from the open codes among each participant, capturing students’ descriptions of their reading processes when reading online and searching for information in a digital learning environment. An analysis of the data from the think-

aloud protocols, observations, and post-reading interviews revealed several patterns which included many strategies similar to reading print texts and additional strategies unique to reading for information online. More specifically, the participants in this study shared their personal Internet reading experiences that appeared to be the same and more perplexed skills of: RQ1 (1) translating the same skills and behaviors reading print and online texts, (2) higher level readers challenging online texts, (3) using online tools to navigate multiple websites; RQ2 (1) applying close reading skills when reading texts online, (2) using reading strategies modeled by the teacher, (3) researching specific websites to locate information online; RQ3 (1) using think-aloud strategy demonstrates competence in reading for information online, (2) using explicit reading strategies before, during and after reading online, and (3) struggling to determine sounds and meanings in online texts.

During the classroom observations and the teacher's think aloud lessons, it was evident that students use the following reading skills when reading for information in informational print texts: summarization, inferencing, memorizing, making connections, decoding, and online navigational skills. The think-aloud interviews revealed that children summarized new information as they read texts online. Participants read aloud the article assigned by their teacher and stopped frequently to summarize what they read. Students made inferences about the information in the article based on what they already knew about the topic. Students tended to rely on prior information and the texts to infer the author's intended meaning. Students used these strategies when reading print and online texts.

The first research question asked: How do sixth graders describe their reading practices when they read informational texts online? Three superordinate themes emerged from the data capturing students' experiences reading informational texts online, as shown in Figure 30.

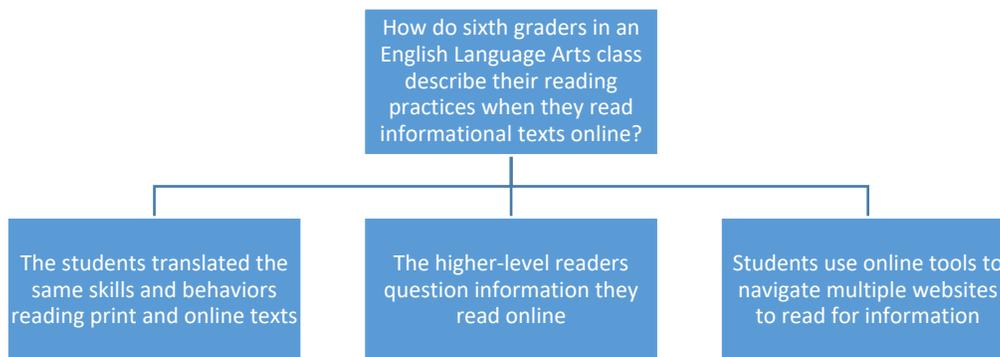


Figure 30: Themes for Research Question 1: How do sixth graders in an 6th grade English Language Arts class describe their reading practices when they read informational texts online?

Students Translated the Same Skills and Behaviors Reading Print and Online Texts

The first theme that emerged from the data suggests that students were translating the same skills and behaviors when reading print text to reading online texts. During class instruction, Ms. Riley models for her students how to read and summarize using a think-aloud. She asks students to use textual evidence from nonfiction texts to make inferences when reading print texts or texts online. During the think-aloud interviews, readers commonly used the same reading strategies they use when reading print texts. For example, in class, students summarized details from the article as they engaged in the process of sharing their thoughts while reading aloud. As students completed assignments

online, they read and summarized aloud, made inferences, made connections, decoded words for sound and meaning, and questioned the texts. There were differences in the range of readers, in that the Level 3 readers preferred asking questions about what they read more often than Level 1 and 2 readers. All participants used navigation tools to help them maneuver back and forth through articles and search engines online.

Each student described their reading experiences aloud during the think-aloud interview and post interview. They spoke about how rephrasing information in their own words helped them to better understand what they read. During the class observation, Ms. Riley modeled how she summarizes the information in texts after reading chunks of the text. She tells the students that she is summarizing and how the strategy helps her to interpret meaning. Ms. Riley said, “Summarizing helps me to break down the text, I want you to practice doing this when you read.” Using the same reading strategy that Ms. Riley’s used in class, Brandon, Chase, Jessica, and Kim paused after each paragraph to rephrase the information they read online during the think-aloud interviews. These students share that they practice chunking the text when reading online, then summarize what they read similar to how they summarize print text in class. Jessica shared her summary using her annotations in the margin of her paper, stating, “Conrad was nervous to go there and to get on the plane, but he did it anyway.” Additionally, Ms. Riley taught the students to annotate each paragraph to help them recall important information during class discussions.

A prior artifact is shared in each students’ profile in the student view section above. Figure 15, Kim’s annotations are restated in her own words and Figure 9 shows

how Chase annotated in the margin as he created and used a “who and what t-chart” to record his responses.

Each participant had a different way of explaining their interpretation of the facts and details in the articles read in class and during the think-aloud interview. The sharing aloud experiences appeared to be a challenge for students in the beginning, so the think-aloud practice session helped to ease their fears. At the beginning of each interview, participants experienced a practice round to ensure they were comfortable with the think-aloud process.

The results in this study show that most of the students participating in this research were accustomed to putting information into their own words when they read print texts or online texts. Brandon (fluent reader) and Jessica (struggling reader) were more verbal summarizers during the think-aloud interview and Chase (fluent reader) and Kim (struggling reader) had more annotations when reading print text.

Students in this study decoded a variety of words throughout the text, but did not allow the pronunciation of the words to interfere with their understanding of the facts presented in the article.

Higher Level Readers Question Information They Read Online

The second theme from the data suggests higher readers ask questions as they read online texts to help them to situate new information. The students in this study demonstrated curiosity when reading for information by questioning the text as they shared during think-aloud interviews. Four out of six participants were actively asking questions of the text. Brandon said, “I’m wondering how hard it was and how long it took to make this park a national one?” Students engaged with text using visuals as a

tool to help them understand what is going on in the article. Chase focuses on the visual to help him understand the article. He said, “I looked at the picture and I wondered if that was actually a popular canyon in the U.S. and then...” Also, he was curious about “what actually happens in the morning when you start walking into the park.” Jessica was shocked, asking “so they have bears?” Students asked questions to help them make sense of what they were reading. Maria questioned the rules of the park and shared, “why would they only give free passes to the 4th graders and their family and why wouldn’t they give it to either the whole school or grade levels?” Questioning the text is a reading skill that helps participants engage with text while continuing to read for further information.

Students Use Online Tools to Navigate Online Texts

The third theme that emerged from the data suggests students are aware of basic functions of navigational tools online. Students demonstrated how they used online digital tools such as toggling from screen-to-screen to locate information, scrolling up and down pages, clicking hyperlinks, and examining visuals. Students used the scroll button to go up and down the text to assist them when searching for information. Once they had the information they needed to support their understanding, students were evaluating what they read by questioning the information in the text. Overall, students used reading strategies online that are typically used when they read print informational text. As evident by the students’ responses during the think-aloud, these three themes encompassed students’ self-awareness of the various reading strategies they use when reading for information in print and online. The exception is when students read online, they show how they navigate the Internet to search and decipher information.

Additionally, students were asked to perform a task that required them to create an infographic of a national park of their choice. They used the Internet to research information without any guidance of which websites to use. Students chose Wikipedia and Google to search for national parks. During think-aloud interviews, Maria conducted a Google search for Yellowstone park as soon as she opened a new tab, she specifically said, “I’m going to go to Wikipedia to see how many national parks are there.” She clicked backwards and made a connection to the text she read on the screen. Maria compared data between what was written on Google versus Wikipedia. Maria briefly commented on her search, sharing, “That was interesting because it gave me more information”. Students narrowed down information when their search reveals a lot of information. Chase explained, “When I research I just sometimes put national parks like when I get a lot of results then I just put in more specific then I narrow it down then I click on each link.” Students searched familiar search engines without a plan of websites to begin their search. Michael shared, “I’m typing in national parks just to see the websites that I can get like Wikipedia, I betcha Wikipedia...” Two out of the six participants actually completed the infographic task and created a visual with important facts about a park of their choice before the last follow up visit. Ms. Riley said that she planned to have individual conferences with students to revise their infographics to encourage personal drawings and other text features that would enhance student visuals. This was the students first attempt to create an infographic. Students did not use a model as a guide. They were provided a rubric with suggested components to include in the final product. Jessica’s infographic (Figure 31) shows three visuals and short descriptive facts she learned about Yellowstone National Park. She searched for information and

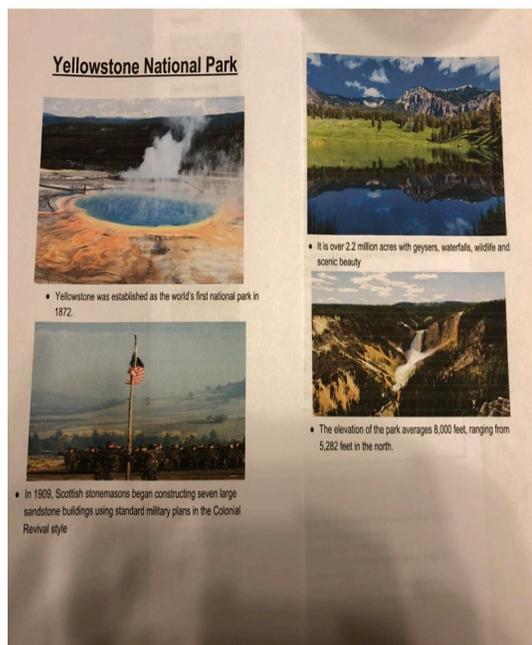


Figure 32: Maria's infographic

The following chart (Table 4) provides connections between open codes and themes that emerged from the data, with further snippets of students' voice and experiences when reading informational texts online, during think-aloud protocol interviews:

Table 4
Axial codes for RQ 1

Coding of participant reading strategies	Definition/examples of student quotes during think-aloud interview
Summarizing: students rephrasing information into their own words	<p>“What I’m seeing is that uhm like when she seeking like for example she’s noting down stuff and like some people uhm they would say like people taking stuff blaming others and that’s why I’m like some people sometimes blaming the park so like that’s what I see right here.” (Brandon)</p> <p>“I think they are going to put a daily visitor limit because it’s getting</p>

	<p>overcrowded and some people have waited for a least a day ...some people who haven't waited that long have just got in and it's not that fair for other people so they put that visitor limit so like they have to wait that other day just to get in.” (Chase)</p> <p>“I think it states that a lot of people try and get there early to have a lot of time to be able to go to the park and have fun and have a reasonable amount of time to be there.”</p> <p>“I know that it's talking bout, well it's not that difficult to read but they don't use very big words in the story and so talking about like how a lot of people come to the park but it's very difficult for the people that were there and so they give clues about how the managers and people that work at park their attitudes.” (Jessica)</p> <p>“Right now people go to a place called Zion, Yellowstone and they would also go to Rocky Mountain and when they go there and it would be hard to find parking lots and a lot of people be crowded but mostly people would think that its peaceful but it's actually aggressive and bad decisions that's what it says according to park officials.” (Kim)</p>
<p>Analyzing the text: students explain and interpret information</p>	<p>“They're saying like for example when you want to use the urinal you have to keep on hiking and hiking...” “It really could have been hard and they had to work for 9 years and they had to work through the war.” (Brandon)</p> <p>“How long did some people wait in their cars to get into a park? They waited in their cars to get in the park more than an hour because it says more than an hour and the last one the national park service celebrated its blank birthday in 2016...well they haven't celebrated their</p>

	<p>birthday for 200 years yet neither 75 and was more than 75 and less than in less than 150 also less than 200 so I would say that it was 100 years because 75 is less than 100 and 150 and 200 is more.” (Kim)</p> <p>“So when it says 100th birthday and that was in 2016 I might be thinking that the park service launch...”</p> <p>“I think they are going to put a daily visitor limit because it’s getting overcrowded and some people...” (Chase)</p>
<p>Based on memory: students attempt to remember what information they read in texts</p>	<p>“So, I remember in the article it said it was celebrating its 100th and the options are 275, 150 and 100 so I pick 100 and I got 2 out of 3.” (Chase)</p> <p>“I got that answer because I remember when they said like they were trying to limit the people that were coming to the park and having to park in parking spaces and they said that people had to wait hours just to come through the gate.” (Jessica)</p> <p>“Can I have the great guess, my best guess...I think about two years.” (Kim)</p> <p>“Oh, I got this...it said four years in a row three years in a row two years in a row five years in a row...I put three years in a row...cause it said that in the passage I think I don’t really remember.” (Michael)</p>
<p>Decoding unknown words: students sound out syllables to pronounce words correctly</p>	<p>“perpetua...perpetuating uhm and to ensure our visitors has a best kind of and safe experience...try to surpass 300 million.” (Brandon)</p> <p>“Se..re...serenity can lead to aggression and bad decisions.” (Chase)</p> <p>“I know the word, but I just can’t say it and their uhm feelings about the park.” (Jessica)</p>

	<p>“Our number one goal is to preserve the park and per-pen-sity.” (Kim)</p> <p>“How to pronounce that?” (Michael)</p>
<p>Making an inference: students make connections between prior knowledge and texts</p>	<p>“I can see that most Presidents tried to make the Great Smoky mountains a national park because since a lot of mountains got people’s attention.” (Brandon)</p> <p>“I think that’s a very crowded place so if someone leaves you gotta quickly get to that spot.” (Chase)</p> <p>“I guess the park manages and the staff that work the Zion national park they love their job and they try to do what they can to make sure that people still come and that they have a good review.” (Jessica)</p> <p>“Sometimes the parks are good but when there’s like more people coming the parks are crowded and stuff happens people misbehave, and some people get headaches.” (Maria)</p> <p>“Zion is pretty smart and they’re doing good things I guess.” (Michael)</p>
<p>Questioning the text: students ask questions about the text during reading</p>	<p>“I’m wondering how hard I was and how long it took to make this park a national one because they had to build it.” (Brandon)</p> <p>“I looked at the picture and I wondered if that was actually a popular canyon in the U.S. and then when I read it – it actually told me what it was. ” (Chase)</p> <p>“If so they have bears?” (Kim)</p> <p>“I was thinking what does it mean? or how do you pronounce it?”</p>

	<p>“Why would they only give free passes to the 4th graders and their family and why wouldn’t they give it to either the whole school or just all grade levels.” (Maria)</p>
<p>Navigating online between websites: students research national parks on the Internet</p>	<p>“So, when I research I just sometimes I put national parks like when I get a lot of results then I just put national parks and the put in more specific then I narrow it down then I click on each link and like.” (Chase)</p> <p>“I just read through the article and then if that’s kind of good, I just keep on reading and then if I don’t really like it I just go to the next one (pauses) so there is a lot of them so I know about the Yellowstone, the Zion and the other one, I think and so there’s a lot of them imma search up more but more specific...so I put famous national parks in the U.S.” (Chase)</p>
<p>Basic recall: students use their memory to recall information from online texts</p>	<p>“So, I remember in the article it said it was celebrating its 100th and the options are 275, 150 and...” (Chase)</p> <p>“I got that answer because I remember when they said like they were trying to limit the people that...”</p> <p>“I was just using my memory too because I heard of the Grand Canyon, but I heard parts about it, but I never...” (Jessica)</p> <p>“Can I have the great guess? My best guess...I think about two years” “Sometimes, online I will just remember what I read and just put it in my mind.” (Kim)</p> <p>“I’m thinking of where it said as in how many times that visitation to National Parks were set as the...” (Maria)</p> <p>“...and the last is easy, it just said it in the passage and I remember it.” (Michael)</p>

	<p>“...just like on the little quiz, I just use my memory...I cancel out things that I don’t remember from the...” (Michael)</p> <p>“It said something like an hour, so I’m going to guess more than an Hour.” (Michael)</p>
<p>Rereading to explain: students conduct a second read looking for specific information</p>	<p>“Well I’m going back to the text and look at that...it says after paragraph five...the National Park Service launched a major marketing campaign to celebrate its 100th birthday that was in 2016...” (Brandon)</p> <p>“I read the first part before and then I find out what it means.” (Chase)</p> <p>“I was rereading something...I reread that part because I didn’t understand I didn’t know what I was reading at first because I have to reread the passage.” (Kim)</p> <p>“The strategies I used were when I didn’t understand it I would try to say it again or I would reread and if something I didn’t agree with wasn’t here I don’t think I would understand this at all or wouldn’t think I could say or talk about what story or passage is about...” (Maria)</p>

The second research question asked: In what ways do students engage with informational texts online? Three superordinate themes and five subthemes emerged from the data capturing students’ experiences reading informational text online, as shown in Figure 33.

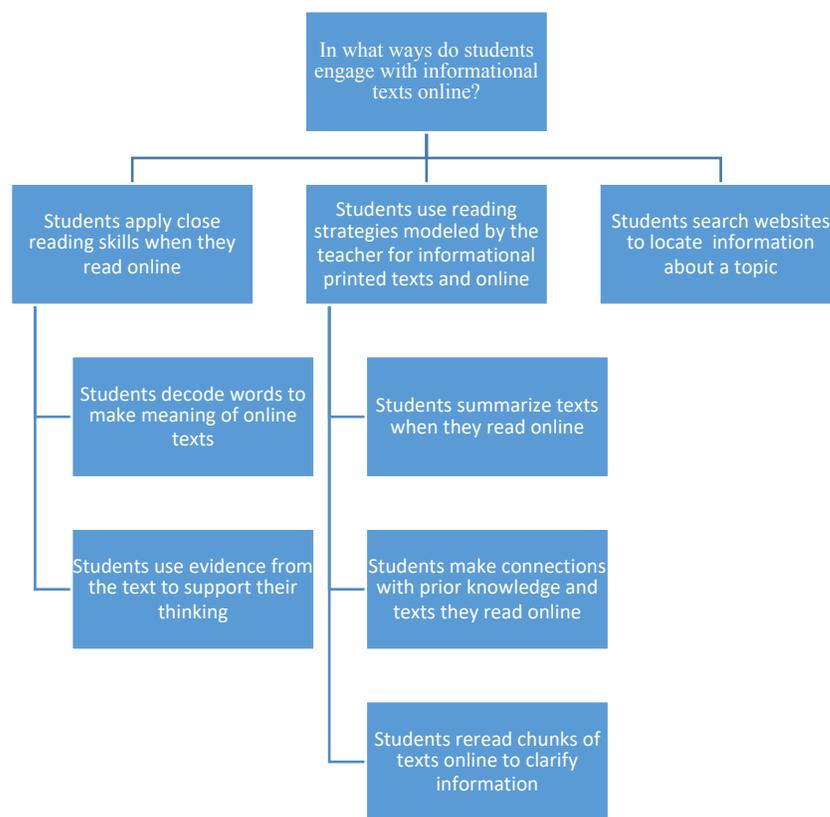


Figure 33: Themes for Research Question 2: In what ways do students engage with informational texts online?

During the interview, all six participants appeared engaged with the information they were reading at different stages of their reading experience. For example, evidence from the think-aloud interviews and post interviews demonstrated students' level of engagement with informational text online using the following reading strategies:

Two subthemes emerged from the data capturing students' experiences reading informational text online, as shown in Figure 33.

The first theme emerged from the data was evident when students were reading in class and online.

Students Apply Close Reading Skills When They Read Online

The first theme that emerged from the data suggested that students apply typical close reading skills when reading online and offline. Students used analysis skills to make meaning of what they read, they reread texts, and made connections with texts to their personal experiences. In the following table (Table 5), examples of students' analysis, rereads, and personal connections are stated related to the article they read aloud and their research on national parks.

Table 5
Readers' predictions and personal connections

When participants read [online article]	[analysis]
<p>“Visits to National Parks Set Record”</p>	<ul style="list-style-type: none"> <li data-bbox="922 856 1421 1115">• “It really could have been hard and they had to work for nine years and they had to work the war.”” (Brandon) <li data-bbox="922 1150 1421 1556">• “...some people who haven’t waited that long have just got in and it’s not that fair for other people so they put that visitor limit so like they have to wait that other day just to get in.” (Chase) <p data-bbox="873 1591 987 1633">[rereads]</p> <ul style="list-style-type: none"> <li data-bbox="922 1669 1421 1850">• “...let me go back in the text to see if I missed anything...I came back to the text.” (Brandon)

	<ul style="list-style-type: none"> • “I read the first part before and then I find out what it means.” (Chase) • “I was rereading something...I reread that part because I didn’t understand, I didn’t know what I was reading at first because sometimes I have to reread the passage.” (Kim) <p>[personal connections]</p> <ul style="list-style-type: none"> • “That was interesting because I did a project on a national park and me researching all of this...” (Maria)
<p>When participants searched online - National parks unstructured research</p>	<p>[analysis]</p> <ul style="list-style-type: none"> • [scanning the article] “I found out that the Redwood National State Park...the temperature is like mild every time of the year and in the winter, it might be difficult to walk in the trails.” (Chase) <p>[rereads]</p> <ul style="list-style-type: none"> • “I’m going to Wikipedia to see how many national parks are

	<p>there...it says United States has 59 protected areas known as national parks. [rereads] It says there are 59 national parks that are protected.”</p> <p>(Maria)</p> <p>[personal connections]</p> <ul style="list-style-type: none"> • “That was interesting because I did a project on a national park and me researching all of this, well me reading the text made me feel that I could have did better or I could have went to more websites to see about national parks.” (Maria)
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Students decode words to make meaning of online texts. The data further suggested that skilled and non-skilled readers relied on decoding skills to determine the sound and meaning of words that they did not recognize. (See Table 6) for student examples:

Table 6
Readers' decoding skills

Decoding skills	<ul style="list-style-type: none"> • “How to pronounce that?” (Maria – medium-skilled reader)
-----------------	--

	<ul style="list-style-type: none"> • “This is a hard word and I can’t pronounce it and I’m struggling.” (Michael – medium-skilled reader) • [read aloud] “Perpetua... perpetuating” umm and to ensure our visitors has a best kind of and safe experience...” (Brandon - skilled reader)
--	--

This study suggests when students read online and off line, they struggle with vocabulary sounds and meanings and quickly move on through texts when there is no hyperlink to suggest the pronunciation or the definition of the words.

Students use evidence from the text to support their thinking. Short-cycle assessments are used when Ms. Riley and her team plan a check for understanding after students read online text in TweenTribune. For this lesson, Ms. Riley assigned students an article to read about Yellowstone National Park, answer three multiple choice questions as an exit ticket for the day, and research a national park of their choice. During think-aloud interviews, students share their experiences with this assessment. Five out of six students made above 50%, the score needed to pass. Students made decisions about answer choices using a variety of reading strategies. Kim scrolls past the picture and read the first question, then she asked the researcher, “can I make a guess?” So she continued and guessed for question number one. She made a comparison to her own life for question number two; however, she reread the passage after reading question

number three then she chose an answer. Kim scored 33 percent on her quiz which is below average and did not meet the daily goal. Kim shared, “I make up my own strategies, I don’t do chunking if it is short, I will continue reading then hook passages together.” Brandon is a fluid reader and rarely pauses as he read aloud. He clicked the back tab to look for textual evidence to answer the questions. He shared, “I found the paragraph I need to support my answer.” Brandon scored 66 percent on the quiz which is above the daily goal for exit tickets. Chase actually did not go back to the text to answer the questions. He said, “I think” for each question and gets the correct answer. He scored 100 percent on the quiz. Jessica also did not return to the prior screen while taking her quiz. She made facial expressions of a person thinking about something and then she chose her answers very quickly. Jessica scored 66 percent and met the daily goal above 50 percent. Even with the prompt sheet I provided next to her, Jessica did not share much during the quiz. Maria did not return to the article for questions one and three; however, she did look for question two. Maria needed a lot of prompting to share what she was thinking during the interview. She scored 66 percent and met the daily goal above 50 percent. Michael guessed at question number one using a process of elimination. He used a personal experience as an example for question number two. He said, “I know how long it took us to get into the park when my family went.” For question number three, he says, “It was easy and I remembered it.” The questions for this quiz were level one questions meaning students could find the answer right there in the text. The students in this study missed at least one question trying to remember what they read in the text. Chase did score 100 percent without looking back in the article; however, the other participants did not remember the facts as well.

The data revealed students look for *textual evidence* to support their ideas gathered during reading. During the think aloud, one student explicitly used textual evidence when answering questions related to the U. S. National Parks article (informational text online). However, Ms. Riley used a think-aloud strategy and prompting questions to engage students in finding textual evidence for the informational print text article about Haiti. Ms. Riley walked around the class as students worked independently to answer the questions. She noticed that a few students were actually recording the exact paragraph for the evidence of question number three. This question is most important to the lesson, and she said, “Finding textual evidence is a skill that students need to know in my class regardless if it is fiction or nonfiction. I want all of my students to be able to support their answer choices with evidence.”

During their online experience, students referred to the article for textual evidence to support their answer choices. Students find going back in the text and actually locating the evidence increases their chances of choosing the right answer. In addition to participants describing their experiences, reading, and searching informational texts online, they chose answers for three multiple-choice questions on a teacher-selected mini quiz. The questions consisted of one “right there” question and two questions requiring them to infer after reading the article. Ms. Riley gave students a written response task or short multiple-choice quiz at the end of every class period to check for understanding. After reading the online text, “Visiting to National Parks Set Record,” students answered questions about facts in the article. Participant scores varied in percentages. Michael scored 3 out of 3, Brandon, Jessica, Maria and Chase scored 2 out of 3 and Kim scored 1 out of 3 correct. The students used similar and different reading strategies to answer the

questions. Prior to the online assignment, Ms. Riley shared with the class, “I want you all to score 50% or better on a short quiz following the article.” Table 7 shows the participants’ scores and if they met, the mastery goal set by the teacher:

Table 7: Short quiz results

Participant’s Name	Points	Percentage	Daily Goal
Brandon	2	66%	50% or higher
Jessica	2	66%	50% or higher
Kim	1	33%	50% or higher
Michael	3	100%	50% or higher
Maria	2	66%	50% or higher
Chase	2	66%	50% or higher

Students Use Reading Strategies Modeled by the Teacher for Informational Print Texts and Online

When engaging her students in think-aloud discussions about fiction and non-fiction texts, Ms. Riley employed a variety of reading strategies that she modeled before, during, and after reading. Examples of teacher online reading strategies were summarizing, making connections, making connections to the text, and using hyperlinks to define unfamiliar words. Ms. Riley also included modeling how to scroll back and forth within an online text to locate specific information.

Students summarize texts when they read online. The most popular reading strategy in this study was students summarizing during the think-aloud and during class discussions. All students in this study stopped to summarize information they read

online. While reading aloud, some students summarized after each paragraph and others after a few sentences. Summarizing was the most popular online reading strategy students used. For example, Chase read down to the bottom, stopped, and paraphrased aloud: “I think they are going to put a daily visitor limit because it’s getting overcrowded and some people have waited for at least a day.” Jessica shared, “I know that its talking bout how people come to the park but is very difficult for people the people that were there and so they give clues about how the managers and people that work at the park – their attitudes.” Brandon stopped after each paragraph to summarize and shared, “I’m like some people sometimes blaming the park so like that’s what I see right here.”

When students use summarizing as an online reading strategy, they find that this reading skill not only works for them when reading print texts, but also when reading online. This reading strategy helps students to break down information to better understand the meaning of the texts.

Students make connections with prior knowledge and texts they read online.

While each student made various connections with the text, four out of the six consistently made connections while reading for information. Students either made a text-to-self, text-to-text, or text-to-world connection. Kim realized each paragraph was connected to the next in order to construct meaning. She said, “So, this is basically attaching some of this stuff to this other paragraph because this paragraph dealing about the rules.” Kim made a connection within the text by chunking and describing how the chunks fit together. Michael took a personal approach to the article making a text-to-self connection, stating, “this made me think of Disneyland because me and my grandma and my sister went to Disneyland like two years ago and it really was crowded...it really was

hectic.” Michael shared a personal interest representing text-to-self, stating, “that was interesting the whole passage is interesting because I like going to parks like Disneyland even regular parks like Zoos and I like exploring going different places.” Reading comprehension increased as students made ongoing connections with what they read. While researching the park of interest, Brandon discovered facts about the Great Smoky Mountains and compared that information with the original online assignment. He paused and said, “oh, this actually has to do with the story I just read because it says that had a record breaking of 307.2 million visitors since 2015. It actually had something to do with my story.”

Each of these reading experiences provides an opportunity for students to connect with new information they are learning. While reading online, students were able to share their perspectives during a think-aloud and what they understand about the information.

Students reread chunks of texts online to clarify information. During classroom observations and the think-aloud interview, students were looking back conducting second reads to understand the facts collectively. Kim used this strategy because she did not understand fully during the first read. As she scrolls up and down the screen, Kim said, “I was rereading something...I reread that part because I didn’t understand I didn’t knew what I was reading at first because I have to reread the passage.” During the first read, Kim read aloud at a very fast pace. She read slower during the second read while stopping to share what she was thinking about the text. Again, Kim shared, “I reread that part because I didn’t understand what I was reading.”

Students search familiar websites to locate information about national parks.

During the classroom observations and think-aloud interviews, students analyzed informational texts. Students explained what the article was about, stopping at chunks and sharing their interpretation of what the facts meant to them. Ms. Riley gave students an online assignment that required research and creating an infographic about a national park of their choice. Students were researching online various national parks, preparing information to create an infographic project. During the post interview, Maria shared, “I chose Yellowstone because it is a historic park and it is very famous and well known. It is known for its geysers.” She was interested in three parks: Yellowstone, Zion, and the Rocky Mountains. She narrowed her search to Yellowstone. Students took notes on a guided note sheet to brainstorm, conduct research, and create an infographic. This guide helped students to organize and narrow their research topic. The following is Maria’s notetaking guide sheet (Figure 34):

Infographic

Directions: You will complete an inquiry (research-based task) to examine a national park. As you read about the place, pay particular attention to the facts and details about the park. Then, you will create an infographic that details what you would like others to learn about this national park. (Infographic - a visual image such as a chart or diagram used to represent information or data)

Name: _____

Task 1: Brainstorm

- Determine three possible parks you would like to research, and write them below.
 - Yellowstone
 - Zion
 - Rocky Mountain
- Spend approximately 5-10 minutes investigating each park that you listed.
- Then, select one of those three options to research for this project. Write the name of the park below:
 - Yellowstone
- Why did you choose this park? Explain in a few sentences.
 - I chose Yellowstone because it is a historic park and it is very famous and well known. It is known for its geysers.

Task 2: Research

Now, it is time to learn more information about your chosen park. You will use your Chromebook to find at least credible websites to gather background information and record it below. Make sure you credit where you find your information from and write the information in your own words!

Website (write address up to .com/.org/.edu)	Research (be sure to paraphrase the info you take from the web!)
www.nps.gov/yell/learn/historyculture	Yellowstone was established as the world's first national park in 1872. In 1909, Senator James began constructing 7 large wooden buildings for the
Yellowstone National Park (om) information.htm	It is over 2.2 million acres with geysers, waterfalls, wildlife and scenic beauty. The elevation of the park averages 8,000 ft.

Infographic

the fun part! You will take your research and create an infographic that shows how the person you interviewed demonstrates a growth mindset. Below you will find the requirements:

- Your infographic should have the park's name written/drawn on the paper.
- Your infographic should contain multiple pictures. These can be pictures of the park or things that present it. Most of these illustrations should be hand-drawn.
- Your infographic should contain the ways in which this person demonstrated a growth mindset.

Figure 34: Maria’s research note-taking guide

Jessica focused more on pictures and how the park looked to her when choosing which park to investigate more. She shared, “I chose Yellowstone because it was a beautiful sight and I would love to learn more about it.” The following is Jessica’s notetaking guide sheet (Figure 35):

Infographic Name: _____

Directions: You will complete an inquiry (research-based task) to examine a national park. As you read about the place, pay particular attention to the facts and details about the park. Then, you will create an infographic that details what you would like others to learn about this national park. (Infographic - a visual image such as a chart or diagram used to represent information or data)

Task 1: Brainstorm

- Determine three possible parks you would like to research, and write them below.
 - Yellowstone
 - Hawaii Volcanoes
 - Hot Springs
- Spend approximately 5-10 minutes investigating each park that you listed.
- Then, select one of those three options to research for this project. Write the name of the park below.
 - Yellowstone
- Why did you choose this park? Explain in a few sentences.
 - I chose Yellowstone because it is a beautiful sight and I would love to learn more about it.

Task 2: Research

Now, it is time to learn more information about your chosen park. You will use your chromebook to find at least 3 credible websites to gather background information and record it below. Make sure you credit where you find your information from and write the information in your own words!

Website (write address up to .com/.org/.edu)	Research (be sure to paraphrase the info you take from the web!)
nps.gov	There is a hidden power that rises up in colorful hot springs, mudpots, and geysers.
Yellowstone National Park.com	At Yellowstone park there is about millions of visitors every year. This is the world's first National park.
Nationalparks.org	Nothing beats the Yellowstone and it is for everyone all ages. It is right on top of a volcano and is home to geysers and hot springs.

Task 3: Infographic

Now for the fun part! You will take your research and create an infographic that shows how the person you researched demonstrates a growth mindset. Below you will find the requirements:

- Your infographic should have the park's name written/drawn on the paper.
- Your infographic should contain multiple pictures. These can be pictures of the park or things that represent it. Most of these illustrations should be hand-drawn.
- It should be written in a bullet point-like fashion with information organized around the page.

Figure 35: Jessica’s research note-taking guide

The results of this analysis reveal that when these students use guides during research, they are able to stay focused and organize their thoughts when researching a topic.

The third research question asked: In what ways do they comprehend or not comprehend informational texts online? Three superordinate themes emerged from the data capturing students’ experiences reading informational text online, as shown in Figure 36.

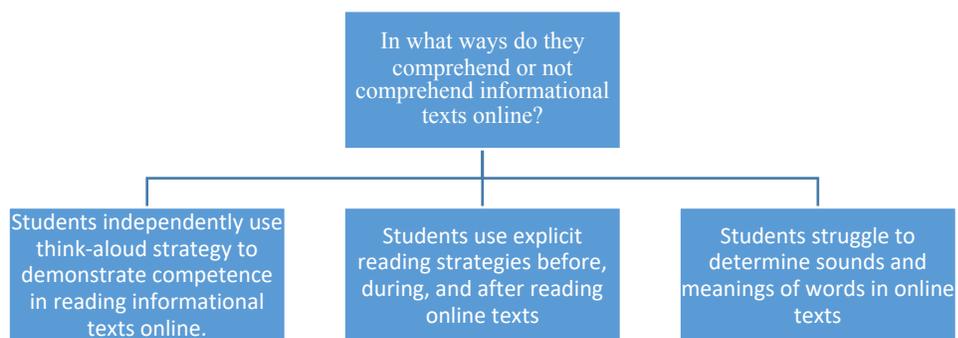


Figure 36: Themes for Research Question 3: In what ways do they comprehend or not comprehend informational text online?

During the interview, all six participants appeared to comprehend what they read during varying stages of their reading experiences. For example, evidence from the think-aloud interviews demonstrated students' comprehending informational text online using the following reading strategies:

- Using prior knowledge to make connections
- Recalling and restating information
- Re-reading texts to summarize information
- Decoding words and phrases
- Locating textual evidence

Three themes emerged from the data capturing students' experiences reading informational text online, as shown in Figure 36.

During the think-aloud, students were observed going back in the article to read a section over again to help them make sense of the article. During the first classroom observation in Ms. Riley's class, she guided her students to look back in the story and reread the text to make inferences while they read a print nonfiction article.

Students independently use think-aloud strategy to demonstrate competence in reading informational texts online. During the think-aloud interviews, students shared what they thought they remembered when reading the text online. At times, students did not go back to look in the article to answer questions or to find textual evidence. Four out of six students demonstrated high frequencies of using their memory to recall information when summarizing aloud during the think-aloud and answering the questions to the exit-ticket. Chase was thinking aloud attempting to remember numbers to answer question one correctly. He did not get the answer correct and he said, “So I remember in the article it said it was celebrating its 100th and the options are 275, 150 and 100 so I pick 100 and I got two out of three.” He was referring to how many questions he answered correctly relying on his memory for his quick assessment. Jessica said, “I got that answer because I remember when they said like they were trying to limit the people that were coming to the park...” Another example of two other students not using the window tab at the top of the computer screen to go back to the article as a reference was Kim taking a guess at an answer choice, stating, “Can I have the great guess, my best guess...I think about two years,” and Michael referenced how many year the text says, explaining, “Oh I got this...it said four years in a row, three years in a row, two years in a row, five years I a row, I put three years in a row...cause it said that in the passage I think, I don’t really remember.” Michael’s statement is an indicator of guessing based on what he thought he remembered that he read previously in the article.

The results of this analysis show these four students guessed answers to questions and provided a rationale for their choices. Three out of these four students answered at

least one question wrong when simply trying to remember rather than going back to reread the article and search for evidence.

Students use explicit reading strategies before, during and after reading online texts. Students began their online experience prescreening the website's homepage. They logged in using their log in and password assigned by the teacher. Next, students clicked on the assigned article. Before reading, students viewed pictures, scrolling up and down the screen to see the length of the texts. During reading, students chunked the text to process what they read. Students were making sense of word meanings and phrases, pausing to think-aloud what they were doing online. Finally, after reading form information, taking a short quiz, and researching a national park, students reflected using the think-aloud protocol about the reading strategies they used during the entire process.

Students struggle to determine sounds and meanings of words in online texts. During the think-aloud interviews, the participants in this study read aloud during individual interviews and at times stumbled over troublesome words. This slowed down the pace of the read aloud due to students sounding out words. Students were very focused on the pronunciation of certain words and would not move on until they felt comfortable. Brandon gave this word a good try, stating, "perpetua...perpetuating uhm and to ensure our visitors has a best kind of and safe experience...try to surpass 300 million." Jessica did not attempt the word she continued past it, stating, "I know the word, but I just can't say it and their feelings about the park." Jessica did not stop to sound out the word realizing that pausing would just slow her down. Using the same strategy as Brandon, Chase focused on the first part of a word, figured out the sound and

continued reading, stating, “se..re..serenity can lead to aggression and bad decisions.” Kim did the same with the word propensity; however, she says “per” for “pro.” When Kim read aloud, stating, “our number one goal is to preserve the park and per-pen-sity.” For her, she was unaware of the sound of the prefix in this word. Michael just asked, “how to pronounce that?” He did not attempt to make sense of the word in context.

While researching, one student struggled when reading the article due to unfamiliar words. Michael said, “I can’t pronounce this word and I’m struggling.” He continued past words that he did not know. Maria struggled with words similar to Michael as she attempted to decode the word, but persevered, asking, “what does it mean?” She repeated words over and over when she thought she pronounced the word incorrectly.

The results of this analysis show that students grapple with words when reading online and this impacts their confidence in determining the intended meaning of the article. All of the participants shared a similar experience when they read the online article and during the research portion of the lesson. The participants in this study each used what they remembered from the print texts read in class and the online articles. Ms. Riley called on students to answer questions about the Haiti article and some students would respond quickly based on their memory. During the think-aloud interviews, students were answering questions based on what they remembered, and their comments reflect why this was happening.

Summary

Chapter four presented the results of the data and highlighted the themes that emerged from the analyzed data. Findings were presented for three research questions

guiding the study: (1) How do sixth graders in an English Language Arts class describe their reading practices when they read informational texts online?, (2) In what ways do they engage with informational texts online?, and (3) In what ways do they comprehend or not comprehend informational texts online? Organized into three sections, part one was the classroom view, part two reviewed participant profiles of the seven participants including the teacher, and part three provided themes emerged from the data which evolved from classroom observations and think-aloud protocols, post-surveys, and post-interviews with participants. The data collected were transcribed into conversations, read and coded using thematic open coding, axial coding, and frequency counts. The classroom observation notes provided narrative support to enhance the data collected from the interviews and surveys. The next and final chapter provides a discussion of the findings.

CHAPTER FIVE: DISCUSSION OF FINDINGS

Overview

The first and second chapters identified a need to study middle school students while reading in a digital space. In particular, this study examined students' reading and their levels of engagement reading informational text on the Internet. Chapter three described the methodology used for this study. Chapter four focused on the findings that emerged from the data. This chapter will present information that will provide a focused discussion of the three research questions that guided this study. More precisely, this chapter is organized by the research questions and findings that emerged from the data. The final chapter draws conclusions based on the findings. The findings are situated in connection to broader literature and positioned within the theoretical framework that led this research. In the closing section, implications and recommendations for stakeholders in education are discussed, as well as recommendations for future research.

Review of the Study

The primary purpose of this study was to explore how middle school students describe their online experiences when reading and engaging with informational texts. More specifically, the study was designed for young readers to share what strategies they used when reading informational texts and how they navigate an online platform in order to comprehend what they read and complete tasks assigned by teachers. I explored students' meaning-making processes while reading print-based and online texts (Coiro, 2011). Students participated in a survey paralleled with scenario-based measures of online reading comprehension, informed by a new literacies' theory of online reading comprehension that measured their achievement. Focusing specifically on sixth graders

and using a descriptive case study design, the following research questions were employed:

1. How do sixth graders in an English Language Arts class describe their reading practices when reading informational texts online?
2. In what ways do they engage with informational texts online?
3. In what ways do they comprehend or not comprehend informational texts online?

Research data were collected during the second semester of the school year in the field. Data consisted of researcher field notes, student work, surveys, and interviews with students and the teacher. I collected examples of students' annotated print-text and online visuals to accompany observations and interviews. Analysis of the data resulted in the emergence of six findings that tell a story of students' offline and online reading practices when reading and engaging with informational texts during classroom observations and think-aloud interviews. Further analysis shows similarities and differences in student reading practices when reading informational texts online.

Discussion of Findings

Middle school students have been exposed to a multitude of reading strategies since they began to read. Before technology, students read predominantly linear printed text while answering questions at the end of the story or chapter. As online information consumption and creation continues to increase, so do the complexities of reading, comprehending, and evaluating complex information. In sixth grade, the students in my study experienced an English curriculum that has increasingly integrated technology. In this setting, they were grouped in a class with peers who have a wide range of Lexile

reading levels. As individuals, they bring a variety of reading strategies to the classroom to build upon.

As a result, I observed what happened when students read informational texts online and engaged in digital tasks. I employed a descriptive case study approach to collect the necessary data for this study. An analysis of data revealed the following nine findings. The first question I asked – *How do sixth graders in an English Language Arts class describe their reading practices when reading informational texts online* – yielded the following findings: (1) students translated the same skills and behaviors when reading both print and online texts, (2) higher level readers challenged online texts, and (3) students used online tools to navigate multiple websites.

The second question I asked – *In what ways do they engage with informational texts online* – yielded the following findings: (1) students applied close reading skills when reading texts online, (2) students employed reading strategies modeled by the teacher, and (3) students search websites to locate information about a topic.

The third question I asked – *In what ways do they comprehend or not comprehend informational texts online* – yielded the following findings: (1) students' use of think-aloud strategy demonstrates competence in reading information online, (2) students used explicit reading strategies before, during, and after reading online, and (3) students struggled to determine sounds and meanings in online texts. The findings are a comprehensive framework for this study. Therefore, it is necessary to review the research questions that guided this study. The final discussion is organized by research question and themes related to each question (Table 7).

Table 7. Research Question and Findings

Research Questions	Overall Findings
How do sixth graders in an English Language Arts class describe their reading practices when reading informational text online?	1) students translated same skills and behaviors reading print and online texts, (2) higher level readers challenged online texts, (3) students used online tools to navigate multiple websites
In what ways do they engage with informational text online?	(1) students apply close reading skills when reading texts online, (2) students use reading strategies modeled by the teacher, (3) students search websites to locate information about a topic
In what ways do they comprehend or not comprehend informational text online?	1) students' use of think-aloud strategy demonstrates competence in reading for information online, (2) students use explicit reading strategies before, during, and after reading online, and (3) students struggle to determine sounds and meanings in online texts

Table 8 displays commonalities and differences in readers revealed through open codes in this study:

Table 8: Participants' online reading strategies

<i>Findings</i>	Brandon Boy Level 3 reader	Michael Boy Level 2 reader	Chase Boy Level 3 reader	Jessica Girl Level 2 reader	Kim Girl Level 1 reader	Maria Girl Level 3 reader
<i>Students use summarizing skills to retell when reading informational text online</i>	x		x	x	x	
<i>Students use inferencing skills to make sense about what authors imply</i>	x	x	x	x	x	x
<i>Students rely on their memory to remember what</i>		x	x	x	x	x

<i>happened in various parts of the text</i>					
<i>Students make connections with prior knowledge to make meaning of new information</i>	x	x			x
<i>Students use decoding strategies to help them to understand unfamiliar words or phrases</i>	x	x	x	x	x
<i>Students use online navigational tools to locate, read and evaluate information</i>	Initial Website used: Google	Initial Website used: Wikipedia	Initial Website used: Google	Initial Website used: Google	Initial Website used: Any website
<i>Students ask questions about the text while reading</i>	x		x	x	x
<i>Students conduct a second read looking for specific information</i>	x		x		x
<i>Students meet daily goal of 50 percent or higher on short-cycle assessments.</i>	Yes -66%	Yes – 100%	Yes -66%	Yes- 66%	No – 33%

Ways Sixth Graders in an English Language Arts Class Describe Their Reading

Practices When Reading Informational Texts Online

The teacher modeled a variety of reading strategies to engage her students in thought provoking conversations. Ms. Riley used printed texts and online texts to demonstrate how to activate prior knowledge about the topic, make predictions about the information, identify different aspects of text features, and set a purpose for reading (Fountas & Pinnell, 2012). Ms. Riley used reciprocal teaching (Palincsar & Brown, 1984), which is a multiple-strategy instructional approach where she repeatedly modeled

four metacognitive strategies: predicting, questioning, clarifying, and summarizing to push her students to discuss the text aloud and to build reading comprehension skills. Prior research has shown the effectiveness in using a modified version of this approach appropriate for reading and researching on the Internet, along with using think-alouds (Coiro, 2011) to support metacognitive processes (Leu & Reinking, 2010). Ms. Riley designed her lessons to “model strategies that a good reader uses” for her students. Cope and the Learning by Design Project Groups (2005) explain teachers are designers of learning opportunities and every experience a student will have in their classes can include technology. My findings support this previous study in the following ways: During a class observation, students read an article “Helping in Haiti” in printed text one class period and an additional article about Haiti online selected by their teacher. Ms. Riley posted the link to the article on her teacher wiki page. She asked students to go to the page to open the article labeled “Haiti article” to prepare for the modeling portion of the lesson. She began a whole class discussion with a prediction question asking students what they had learned about Haiti in the past. Brandon said, “It’s a poor country.” She asked, “How do you know?” Brandon said, “the news.” Ms. Riley asked students to skim the text online and make predictions. She used prompting questions to stimulate the class discussion, pushing students’ thinking into making connections. Next, she chose a think-aloud strategy to model how to make inferences using text and prior knowledge “backing up with evidence.” Before reading, Ms. Riley set a purpose for reading and established a collaborative environment where students shared in a whole class discussion about what they knew about Haiti. One student shared that his family visited Haiti in the past. During reading, the teacher and students were using their prior knowledge to discuss

aloud what they knew about the people in Haiti and the area. The teacher guided the students to focus on certain vocabulary words to make predictions about the information anticipating what they would learn about Haiti and to set a purpose for reading. The article provided basic information about Haiti; however, the article prompted partner discussions, new knowledge, and questions. Next, students were asked to annotate the text with their summaries, questions, and comments to make connections with each paragraph. Ms. Riley modeled the first chunk of text on how good readers annotate while reading to build comprehension skills. Finally, students answered questions about the text that included text dependent and inferencing questions.

It is important that teachers create a space where students are free to collaborate and use reading strategies to help them be successful when reading print or online texts. Reading strategies provide readers a way to interact with the text when reading complex material realizing that the only change is the complexity and sophistication of the text (Tovani, 2011). In this study, students employed several reading strategies applicable to reading linear text and hypertext in a digital environment. During the think-aloud interviews, when reading informational articles online, students individually used the following reading strategies: summarizing new information, using their memory to recall what they read, using their prior knowledge to make connections with new information, decoding unfamiliar words to make sense of the text, and navigating within a digital space to read and understand a topic. Students were constructing meaning between reader and the text within the online environment (Britt, Goldman, & Rouet, 2012; Snow, 2002). These students used familiar reading strategies, such as making predictions, using

prior knowledge, and decoding unfamiliar words to construct meaning (Afflerbach & Cho, 2009; Langer, 2011).

Additionally, students in this study demonstrated their ability to summarize and make inferences after reading a chunk of text and thinking about what they already knew to draw conclusions about what was happening in the article (Pressley & Afflerbach, 1995). Among some readers in my study, Brandon and Chase summarized after every chunk of text when reading online. Other readers (Jessica and Kim) periodically summarized throughout the article and research tasks when reading online. Michael scored low on state assessments; however, he did not summarize the text, asks questions during the think-aloud, or conduct a second read of the information online. Contradictory to his scores on state tests, the short-cycle assessments, known as exit tickets, demonstrates that he understands what he read. All of the students in this study used inferencing skills to make sense of the text when reading online. During post-interviews, students shared how they made inferences by thinking about what they already knew prior to reading and searching online and adding to the new information they gathered to draw a conclusion. There were mixed results as it relates to all readers making connections with the online text. In most cases, both groups of readers shared their personal connections; however, Chase and Jessica did not share that they made personal connections or other text connections to assist their understanding. When reading online, all students in this study decoded words to determine the sounds and the meanings within the context of the articles. As students began to research online, they used different search engines. Brandon, Chase, Jessica used Google as their initial website to research national parks. Michael and Maria used Wikipedia to research their choice of a national

park, while initially one student (Maria) conducted a random search using the first screen that was available. Maria did not choose a particular search engine to browse as a primary choice. Ms. Riley's planning team designed quick check-in assessments, three to five questions for selected texts. All students, but Kim demonstrated an understanding of what they read. Consequently, Kim employed every strategy used by all other students except for questioning the text as she read and thought aloud. During the think-aloud, students researched a national park and results revealed students employed similar strategies repetitively as they did when reading the assigned article in the tweentribune.com teacher page. However, when researching a topic, students differed in how they chose to conduct their research searches. Students chose different web browsers (i.e., Google, Wikipedia, and the school-base browser) during their initial search. The findings in my study support the claims made by Coiro and Dobler (2007) that online research consisted of offline reading comprehension skills. However, online tasks appeared more complex and required supplementary skills.

Findings reveal that students engaged with online texts using similar reading strategies typically used when reading printed texts, such as predicting, summarizing, making inferences, decoding, making connections, and researching online. As it relates to these six readers, differences in the use of reading strategies vary. Some readers in this study did not question the text or summarize as much while reading online. They spent a lot of time decoding the text, particularly unfamiliar words that seemed to slow down their fluency skills and reading comprehension. When asked to research a topic, all readers searched familiar search engines, yielding a wealth of websites and overwhelming information. The readers within Level 1 and Level 2 reading ranges

focused on the graphics and pictures rather than the information that accompanied the visuals. Brandon, Chase, and Maria questioned the text and closely searched for specific information in each hyperlink, in addition to using researching skills to find answers to their questions. Brandon, Chase and Maria were able to specifically focus on reading the assignment and navigating the screens to find the evidence they needed to answer questions and research their park. Also, these readers toggled back and forth between screens to make connections and synthesize what they read from each informational article. Additionally, the above readers purposely chose more than one search engine using skills like comparing and contrasting information.

As it relates to the theoretical framework, the notion of reading is an active, constructive meaning-making process in which the reader, the text, and the activity are intertwined (Kintsch & Kintsch, 2005). Readers in this study constructed meaning using reading strategies to connect with informational text. Due to varying reading levels, some students used strategies to construct meaning to comprehend online informational texts and all students were reflective about their reading practices (Afflerbach & Cho, 2009; Langer, 2011). Additionally, the notion of new literacies and digital technologies afforded opportunities for students to access and interact with meaningful content aligns with all students in this study reading and researching information online, and two out of six applied their learning by creating a final information product.

Ways Readers Engage in Online Texts

As online information consumption increases, so does the complexity of the texts. This complexity will require students to engage in a different set of processes when reading various types of texts (Duke, Caughlan, Juzwik, & Martin, 2012, p. 6).

Informational texts play a primary role in adult readers' lives which means students will need the necessary skills to critically engage with new information.

Coiro and Dobler (2007) observed sixth graders with high verbal skills performing informational search task on the Internet. They found that students applied a set of strategies specific to reading digital texts. Among others, these strategies included scanning and skimming pages in search of relevant information and using hyperlinks to predict upcoming text materials. In this study, during the think-aloud interview and research, students scanned information on Wikipedia and Google, reading snippets about a national park. Students clicked links that led to a different web pages to continue their search. Students located, read and summarized information out loud. In another study, Zhang (2013) compared a group of trained readers with a group of untrained readers on their approach to reading websites. The time spent to skim or read the various websites was taken as a dependent variable. The results showed how the untrained readers tended to browse websites quickly but hardly ever stopped to carefully read a website. Typically, they scrolled up and down a web page, shifting frequently among different elements of a site, and their attention was mainly drawn by pictures and relevant and nonrelevant animations. In summary, their reading was fragmented and disconnected so their reading comprehension was significantly poorer than that of the trained readers whose reading was more intentional. In this study, findings suggested similar online reading behaviors of untrained readers and low readers. During think-aloud interviews, two readers (Michael and Kim) scrolled up and down web pages, viewing pictures which shifted their focus from reading and searching for information. Specifically, Michael drifted into imagining and said, "I'm thinking I really want to go there." Students faced

challenges as they conducted research online especially when they have not had enough instruction in effective information literacy strategies supported with technology (Colwell et al., 2013). Julien and Barker (2009) conducted a study on 24 students who were asked to conduct online research on a specific topic and the findings showed these students lacked information literacy skills. Another study reported that students use basic searching strategies posting the given research questions directly in the browser, which results in poor outcomes (Colwell et al., 2013; Julien & Barker, 2009). The findings in my study support the claims made by these researchers that students searched for national parks by simply typing the name of a specific national park or they typed “national parks in the U.S.” yielding many hyperlinks that led to an overwhelming list of possible choices. Jessica lacked researching skills as she focused on the visuals and captions and struggled to decode information on the screen. Additionally, Kim spent a significant amount of time deciphering unfamiliar words which hindered her search results.

Findings reveal that students engage and disengage when reading online informational text and researching for information online.

Ways Readers Comprehended and Did Not Comprehend Informational Texts Online

Proficient readers know that online information requires the skills seeking and locating information through layers of links and that monitoring comprehension is more complex than determining if the text make sense (Dobler & Eagleton, 2015). According to Keene (2011), students who comprehend well will use reading strategies to learn new concepts, become closely connected to what they read and critically evaluate what they read. Then, the reader will apply new knowledge to solve practical and intellectual problems. Comprehension is an active, constructive, meaning making process (Goldman,

2010; Graesser, 2007; Kintsch & Kintsch, 2005; McNamara, 2012) in which the reader, the text, and the activity play a crucial role (Alexander & Jetton, 2002; Pearson, 2001). In this study, participants used their prior knowledge to help them to connect with the text, paused to reread information for deeper understanding, summarized what they read, decoded unfamiliar words, and located information about national parks from multiple sites. This finding supports Anastasiou & Griva (2009) study where poor readers used rereading as a strategy as a self-monitoring tool. Additionally, participants demonstrated various levels of reading comprehension of informational texts online as they previewed features of the texts to scaffold new information and build new knowledge. Quotes from the think-aloud interviews provided deeper insights to support that each participant comprehended most of what they read with the exception of a few vocabulary words.

One study proved differences among students have been found in prior studies in terms of students' rate to process information, text recall, and how they comprehend what they read online and offline (e.g., Kerr & Symos, 2006; Mangen, Walgermo, & Bronnick, 2013). For example, Mangen et. al. (2013) observed Grade 10 students in Norway who read text digitally or in print and found that students who read printed versions scored considerably high in reading comprehension. In another study, Kerr and Symons tested how 60 Grade 5 Canadian students recalled information after reading two passages, one printed text and one digital text. Results revealed that participants recalled more information from the print text than the digital text. Further support for this theory stems from a survey conducted by Rideout, Foehr, and Roberts (2010), who found that students who read print text reported that they were more likely to multitask when reading online. Interestingly, in this study of sixth grade students, four out of six participants did not go

back to locate textual evidence when answering questions online. However, when they read the printed article in class, guided by their teacher, they did reference the text frequently for textual evidence. In most cases, participants used their memory online and reread the printed text more when answering text dependent questions; however, their choice to review the text or not did not appear to affect their recall for information. Consequently, one student (Kim) out of six used her memory to recall information to answer questions and she only answered one question correctly.

Further supporting Keene's study (2011), students in this study used reading strategies to comprehend texts. In this study, students pre-scanned website homepages and viewed pictures, captions, and other webpage features. It is worth noting that not all students were interested in the visuals and those students chose to go directly to the typed information to begin reading. Additionally, students chunked the text to break down what they read and summarized those sections to describe what they understood in that section of the text. Students used additional navigation tools when they researched national parks. They clicked the hyperlinks provided to locate a specific national park. The way students searched led them to an overwhelming amount of information and choices. All of the students chose from the list of hyperlinks provided. Specifically, they clicked one of the first two links listed at the top of the webpage, which took them to more choices. This raises the question of the effectiveness of non-structured research assignments in which students use research engines they choose. After reading, students used this time to reflect on the strategies they used online and the access they had to reading tools that helped them when they read printed texts. Maria shared in her reflection how she did not like the part where she could not highlight texts online, but she

did like that she could quickly scroll and reread text when she felt the need. This presented a challenge for her as she was accustomed to highlighting information in printed texts. Jessica shared in her reflection that she should pace herself more when reading so that she understood what she read. This suggests that low readers are aware of the reading pace and they are able to adjust their reading speed to better comprehend what they read.

Coiro's (2011) study investigated 109 diverse seventh graders using a topic-specific scenario-based measure of online reading comprehension that demonstrated Similar to this study, students researched a specific topic (national parks), which kept the search results focused. The findings in both studies remain contradictory to a larger body of work that suggests prior knowledge plays an important role in students' reading comprehension of online texts. A particularly interesting finding is that all of the students in this study grappled with word sounds and word meanings when reading online using a think-aloud protocol.

Across-cases within the small sample, in this study, proved students used similar reading habits when reading online as other research studies. Cho (2014) investigated seven high school students who were good readers to study the reading strategies they used when they read on the Internet. Cho (2014) reported students used modified traditional, print-based reading strategies, such as, making-meaning, self-monitoring, and additionally used Internet navigational tools. Similarly, I found students used traditional printed texts reading strategies (predicting, making-meaning, self-monitoring, and questioning) when they read for information along with a few navigational activities

(scrolling, hyperlinks, and locating information). These findings lead to implications for classrooms and policies.

Implications for Practice and Policy

The observations and interviews throughout this study resulted in a few key findings regarding reading strategies a small sample of 6th graders used when they read and searched for information online. Three themes for each research question emerged from the data. For research question one, the first theme that emerged was that students in this study translated same skills and behaviors when reading printed and online texts. Collectively, six out of six students used inferencing and decoding skills when reading print and online texts. Five out of six used recall to remember what they read when online and four out of six readers questioned the texts. The second theme was that Level 3 readers challenged online texts versus Level 1 and 2 readers. The third theme was students used online tools to navigate multiple websites to locate information. In an unstructured search assignment, students used Google and Wikipedia as their primary search sites. Three out of six used Google and three remaining students used Wikipedia to search for national parks.

All six readers tended to use similar reading strategies when reading both online and printed texts. Making connections, using memory to recall, summarizing and making inferences were the most frequently used reading strategies when students read aloud using a think-aloud protocol. Students were asked to share their thoughts as they read aloud and searched online. While these findings validate previous research done by Keene (2011), the differences between readers were few in this study. In contrast, the Level 1 and 2 readers reported using the rereading strategy and an increase in

encountering unfamiliar vocabulary more often than the Level 3 readers which validates research conducted by Hall & Salvey (2007).

For research question two, three themes and sub-themes emerged from the data. One of the themes from the online interview and observation, students applied close reading skills when reading texts. The second theme, from the online interview, was that students used reading strategies modeled by their teacher when reading informational texts. The third theme represents students researching specific websites to locate information online.

For research question three, three themes emerged from the data. One of the themes from the online interview suggest students use the think-aloud protocol to demonstrate their reading competencies. The second theme suggests students use explicit reading strategies before, during, and after reading. The third theme reveals the struggles students encounter with unfamiliar vocabulary which affects their fluency and comprehension.

Based on these findings, there are implications for administrators and educators and the way in which we teach students to read for information online in the everyday classroom. First, it is imperative that reading strategies and skills be taught and students given the opportunities to read informational texts in print and online as an integrated part of the curriculum. In order to meet the requirements of the Common Core State Standards Initiative (2006), students must be able to comprehend and evaluate multiple types of texts across various disciplines with a complementary blend of technology. Ongoing professional development for teachers plays a significant role in their growth and knowledge in teaching students how to effectively read informational texts in a

digital environment. The fact that six students on different reading levels spent most of their time decoding words within online texts and did not use online tools to assist them indicates there is a need for teachers to model explicit online reading strategies for students. In general, it appeared that these students struggled online and offline with defining and gaining meaning of unfamiliar words without the use of an online tool to assist them. Additionally, students in this study looked back in the texts for evidence when answering questions in printed text more often than when they answered questions online. Five out of six readers relied on their memory to recall information in the text. Recalling is a form of guessing rather than verifying by referencing the information and rereading for clarity and evidence. With the increasing amount of reading assignments students will encounter in a digital environment, it is necessary to incorporate how to effectively use familiar reading strategies when they read online. It is key that students are equipped with reading strategies and the knowledge about the use of various digital tools that support critical thinking and deeper understanding of the text they read online.

This study demonstrated that readers used traditional reading strategies such as summarizing, inferencing, memory recall, making connections, decoding words, and rereading to make meaning of texts. However, students usually viewed the first article they read online as linear text. When searching for a specific topic online, digital tools available for students were not used. Are there more opportunities for educators to explicitly model for students how to successfully use certain reading strategies and online tools to produce deep understandings of the information they read online and how to evaluate the web sources that provide the information?

Recommendations for Further Research

This study sought to observe the reading strategies sixth graders used when they read informational texts online considering the reading levels of three types of readers (high, medium, and low). The researcher proposes that the findings in this study could be a representation of other readers in different settings if this study were conducted with a more diverse group of participants. This study could be replicated in a suburban school or sub-groups that include students who have affluent backgrounds. For a broader view, it would be interesting to observe students in a different age group, such as high school students, about what happens when they read for information and search on the Internet.

Future research inquiries might lead researchers to conduct studies centered around this topic using a larger number of participants and using various research instruments such as an expanded survey, the Students' Perception in Cognitive Dimension (SPCD) developed to identify student perception toward their cognitive abilities or Students' Cognitive Mastery Achievement Test (CMAT) used to measure student mastery in a particular subject. Additional data to collect might include observation of the frequency in which readers engage with informational texts online and the reading strategies they enact as they read. For the purpose of this study, assessing students' cognitive abilities when reading online would provide rich data as to how they comprehend when they read on the Internet and what strategies they use. Relative to implications for the classroom, this insightful knowledge would be invaluable for educators in future reading instruction implementation. Side-by-side with the think-aloud in this study, a cognitive review of students' reading behaviors would enable the educator

to get a detailed picture of how students make sense of what they read, and as a result, instruction can be enhanced to meet the reading needs of all types of learners.

Further research could also focus on cross-case analysis, from a larger sample, of the various reading strategies that are used when reading informational texts online and the effects that commonly used strategies have on reading comprehension.

Ultimately, the researcher would suggest studying the methods used in other schools to integrate technology into the curriculum and the reading strategies that are shared with students to use when reading and engaging with informational texts online.

Summary

The purpose of this research study was to observe the reading strategies that sixth graders used when reading informational texts online. This study comprised of three research questions that sought to reveal the reading strategies and navigation tools that students used to make meaning of a selected informational article and a search task on the Internet.

While this qualitative case study validated prior research surrounding reading strategies students use with print and online, it has also contributed to the research by including students' voices and perspectives about how they learn and make meaning of informational texts online. There has been prior research mostly focused on meaning-making processes used when reading informational printed texts (Goldman, 2015; Graesser; 2007; Kintsch & Kintsch, 2005; McNamara, 2012), but there is a gap in the research on the perceptions of middle school and high school students and how they perceive making meaning of texts online. This qualitative case study can serve to inform further research about what happens when students read for information online. As this

research serves to represent a few student voices, more research is needed to delve deeper into the reading practices that middle school students engage in when reading online for a purpose.

In this study, the data analysis indicated:

1. Readers at all levels of reading development use similar reading strategies with printed texts and online texts, although the results of this study revealed high readers use a few additional strategies to make meaning of what they read.
2. There is a need to teach readers lessons on how to use online navigational tools in collaboration with reading strategies to comprehend online informational texts.
3. There is a need for middle school students to have more infused opportunities in the classroom to read informational texts online alongside printed texts.

Reading to learn is the foundation to becoming a more informed citizen and evaluator of information placed on the Internet. As administrators and educators, it is our obligation to stay abreast of current educational trends and advanced technologies that will continuously transform teaching and learning. As we strive to meet the high demands of technology and students' daily Internet interactions, we must continue to identify how we can meet their needs in reading comprehension across disciplines in print or online texts.

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APPENDIX A: COVER LETTER

Letter to Parents

Dear Parents and Guardians of _____

I am writing to tell you about a research study that will be take place in your child's classroom this year. A research study will look at how my students develop as readers throughout the year. I will participate in this study from January 2017 until February 2017. Alonda Clayborn, a doctoral student from UNC-Charlotte, will lead this research endeavor as she will explore what happens when students read informational text online and what possible effects those factors have on their reading comprehension.

This study will take place within the context of their teacher's regular lesson. I am not doing anything different as a teacher. Rather, the researcher is just looking closely at what your child does as he/she reads in the classroom. She will record notes, conference with your child, and complete a think aloud interview. Then, she will interpret what your child is trying to convey about his/her reading habits. When she talks about your child's reading to other professors, she will be sure to use a pseudonym to ensure your child's confidentiality.

Alonda Clayborn will occasionally be a participant-researcher in my classroom. That means they might come into my classroom and observe as I teach. She will write notes also and may ask your child about his/her reading. These conversations will be audio and video recorded so she can analyze what your child says about his/her processes for reading. A reading survey will be conducted to collect information about your child's daily reading habits and strategies used when reading and comprehending.

We are hoping to learn what students do as they read. We want to share the work of your child with other educators, so they may understand the processes students use when they are reading informational text in a digital environment. I plan to use samples of your child's reading and oral comments of your child from classroom discussions. I will not use your child's name in any situation. Your child will have a pseudonym. Your child's information, however, will not be anonymous because I will photocopy some of your child's reading responses. If you choose not to permit me to share information about your child, there will be no consequences for your child.

I have attached a consent form for you to sign. If you change your mind later and want to withdraw your permission for me to share information about your child, please contact me and I'll accommodate your wishes. My contact information is listed below.

Thank you for your consideration.

Sincerely,

Teacher

Alonda Clayborn
Doctoral Candidate, UNCC

APPENDIX B: INFORMED CONSENT

**Informed Consent for
Alonda Clayborn, Doctoral Candidate UNC-Charlotte
Digital Literacies: A Case Study Exploring the Reading Processes of Grade Six
Students in a Language Arts Classroom Engaging with Informational Texts**

Project Title and Purpose:

This research project, titled *Digital Literacies: A Case Study Exploring the Reading Processes of Grade Six Students in a Language Arts Classroom Engaging with Informational Texts*, is a single project conducted by Alonda Clayborn from UNC-Charlotte at a middle school. The purpose of this project is to investigate what young students do as readers when reading informational text online in 6th grade. I will collect research by observing, interviewing, and collecting reading samples from your child to look at the reading processes they use to make sense of what they read.

Investigator(s)

Primary Investigator: Alonda Clayborn

Eligibility

Any native English speaking students in this classroom are eligible to participate in the study.

Overall Description of Participation

This is a study to discover how children develop as readers in a digital environment. In this study, the teacher will conduct reading instruction as he/she normally does—within the structure of a reading lesson. The researcher will look closely at what students do as they read in the classroom by recording notes, conferring with students, and conduct a think-aloud interview. From these notes, the researcher will write a one-page memo to analyze later. As the researcher reads the memo, she will discover how readers develop across the various grade levels. The researcher will conduct the study in a reading computer lab during regular classroom instruction similar to a small group discussion during a normal English Language Arts class. The class meets the last block of the day.

The researcher will observe all students during 1 class period and will use anecdotal notes to describe the reading strategies students are using to comprehend informational texts and the reading strategies modeled by the teacher. Additionally, a closer, more in-depth interview will be conducted with six students (3 males and 3

females). The selection of these students will be a random selection to participate using a variety of ranges involving academic reading ability (lexile level) and gender. If your child is selected for the more in-depth interview, the classroom teacher will contact you to notify you of your child's participation.

The researcher will visit twice a week to observe students that participate in this study. When she confers with students, she will audio/video record her discussion so she can look back and analyze what your child says about his/her reading.

Your child will be asked to read as he/she normally reads in the classroom. Occasionally (about once a week) the researcher will confer with your child for about 45 minutes to ask about their reading. This conference will be no different than the reading conferences that already occur in the classroom.

Length of Participation

This study will take place from January 2017 – February 2017. Again, it will occur within the normal time designated for reading instruction in the classroom.

Risks and Benefits of Participation

At this time, there are no foreseeable risks or discomforts for this study. However, the project may involve risks that are not currently known.

Volunteer Statement

You and your child are volunteers. The decision to participate in this study is completely up to you and your child. If your child decides to be in the study, he/she may stop at any time. He/she will not be treated any differently if they decide not to participate in the study or if they stop once you have started.

Confidentiality Statement

Any information about your child's participation, including his/her identity, is completely confidential. The following steps will be taken to ensure this confidentiality: 1) Your child will be assigned a pseudonym when teachers discuss what he/she does as a reader, 2) The writing samples collected from your child will be stripped of any identifying attributes such as his/her name.

Statement of Fair Treatment and Respect

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the university's Research Compliance Office (704-687-1871) if you have questions about how you are treated as a study participant. If you have any questions about the actual project or study, please contact Alonda Clayborn (asing111@uncc.edu) or the Responsible Faculty, Dr. Brian Kissel (b.kissel@uncc.edu).

Approval Date

This form was approved for use on *January 4, 2016* for use for one year.

I have read the information in this consent form. I have had the chance to ask questions about this study and about my child's participation in the study. My questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to allow my child to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the principal investigator of this research study.

Child's Name (PLEASE PRINT)

Parent's Name (PLEASE PRINT)

DATE

Parent's Signature

Investigator Signature

DATE

APPENDIX C: INFORMED ASSENT



Student Assent Form

My name is Alonda Clayborn and I am a doctoral student at The University of North Carolina at Charlotte. I am doing a study, in your language arts classroom, to see what children do when they read informational text online.

If you want to be in my study, I will ask you about some of your reading strategies and interview you as you read a few informational articles online. I may use your out loud responses to understand what you are thinking and doing, but I would never use your real name when I talk about your reading habits.

I'm a graduate student that would like to know how children develop as readers.

You can ask questions at any time. You do not have to be in the study. If you start the study, you can stop any time you want and no one will be mad at you.

I hope this study will help me and other teachers understand how children develop as readers, but I can't be sure it will. This study will not hurt you.

When I am done with the study I will write a report. I will not use your name in the report.

If you want to be in this study, please sign your name.

Signature of Participant

Date

Investigator Signature

Date

APPENDIX D: Classroom Observation Guide

Physical Layout of Classroom

- Seating Arrangement
- Resources
- Technology

Process of Design

- Reference to previously used resources
- Opportunity to shape resources
- Created/selected resource for task

Design Elements

- Design Elements include use of:
 - Linguistic
 - Visual
 - Audio
 - Gestural
 - Spatial
 - Multimodality

Situated Practice

References to students using outside of the classroom for non-school related activities

Overt Instruction

- Conversations with students about how they come to understand a topic
- Method of presenting new information to the students
- Use of multimedia or technology to enhance your instruction

Critical Framing

- Use of multimedia or technology to enhance your instruction
- Influence of purpose in activity design
- Critical literacy (consideration of the social ramifications of ideas and actions in terms of such considerations as culture, gender, socioeconomic status, sexual orientation, and language)

Transformed Practice

- Opportunities for your students to apply their learning
- Opportunities to reflect upon how students can have a positive impact on society

APPENDIX E: Metacognitive Awareness of Reading Strategies Inventory (MARSI)
By Mokhtari and Reichard c. 2002

*Adapted from Anderson's 2002 "Online Survey of Reading Strategies"
 by Alonda L. Clayborn, 2016*

Directions: Listed below are statements about what people do when they read academic or school-related materials such as textbooks or library books. Five numbers follow each statement (1,2,3,4,5) and each number means the following:

- '1' means "I never or almost never do this"
- '2' means "I do this only occasionally"
- '3' means "I do this sometimes" (about 50% of the time)
- '4' means "I usually do this"
- '5' means "I always or almost always do this"

After reading each statement, circle the number that applies to you, using the scale provided. Please note that there are no right or wrong answers to the statements on this inventory.

I have a purpose in mind when I read.	1	2	3	4	5
I take notes while reading to help me understand what I read.	1	2	3	4	5
I think about what I know to help me understand what I read.	1	2	3	4	5
I preview the text to see what it's about before reading it.	1	2	3	4	5
When the text becomes difficult, I read aloud to help me understand what I read.	1	2	3	4	5
I summarize what I read to reflect on important information.	1	2	3	4	5
I think about whether the content of the text fits my reading purpose.	1	2	3	4	5
I read slowly but carefully to be sure I understand what I am reading.	1	2	3	4	5
I discuss what I read with others to check my understanding.	1	2	3	4	5
I skim the text first by noting characteristics like length and organization.	1	2	3	4	5
I try to get back on track when I lose concentration.	1	2	3	4	5
I underline or circle information in the text to help me remember it.	1	2	3	4	5
I adjust my reading speed according to what I'm reading.	1	2	3	4	5
I decide what to read closely and what to ignore.	1	2	3	4	5
I use reference materials such as dictionaries to help me understand what I read.	1	2	3	4	5
When the text becomes difficult, I pay closer attention to what I'm reading.	1	2	3	4	5
I use tables, figures, and pictures in the text to increase my understanding.	1	2	3	4	5
I stop from time to time and think about what I'm reading.	1	2	3	4	5
I use context clues to help me better understand what I'm reading.	1	2	3	4	5

I paraphrase (restate ideas in my own words) to better understand what I read.	1	2	3	4	5
I try to picture or visualize information to help me remember what I read.	1	2	3	4	5
I use typographical aids like boldface and italics to identify key information.	1	2	3	4	5
I critically analyze and evaluate the information presented in the text.	1	2	3	4	5
I go back and forth in the text to find relationships among the ideas in it.	1	2	3	4	5
I check my understanding when I come across conflicting information.	1	2	3	4	5
I try to guess what the material is about when I read.	1	2	3	4	5
When the text becomes difficult, I re-read to increase my understanding.	1	2	3	4	5
I ask myself questions I like to have answered in the text.	1	2	3	4	5
I check to see if my guesses about the text are right or wrong.	1	2	3	4	5
I try to guess the meaning of unknown words or phrases.	1	2	3	4	5

APPENDIX F: Online Reading Strategy Inventory (ORSI)
Adapted from Anderson's 2002 "Online Survey of Reading Strategies"
by Alonda L. Clayborn, 2016

The purpose of this inventory is to collect information about the strategies you generally use while reading online (surfing the Internet, doing research for class, etc.).

Each statement is followed by a group of numbers, and each number means the following:

- '1' means "I never or almost never do this" while reading online
- '2' means "I do this only occasionally" while reading online
- '3' means "I do this sometimes" while reading online
- '4' means "I usually do this" while reading online
- '5' means "I always or almost always do this" while reading online

I have a purpose in mind when I read online.	1	2	3	4	5
I take notes while reading online to help understand what I read.	1	2	3	4	5
I think about what I already know to help me understand what I am reading online.	1	2	3	4	5
I look at the overall view of the text before I start reading online.	1	2	3	4	5
I read out loud to myself when the online text gets confusing or difficult to understand.	1	2	3	4	5
I think about whether the online text fits with my purpose for reading.	1	2	3	4	5
I read slowly and carefully to understand what I am reading online.	1	2	3	4	5
I review the online text, looking at length and organization.	1	2	3	4	5
I try to get back on track when I lose concentration.	1	2	3	4	5
I print a copy of the online text so I can write on it and make notes	1	2	3	4	5
I adjust my reading speed according to what I am reading online.	1	2	3	4	5
When reading online, I decide what to read carefully and what I can choose to ignore.	1	2	3	4	5
I use the links to reference materials (like online dictionaries) to help me when I don't understand what I am reading.	1	2	3	4	5
When the online text becomes difficult, I pay closer attention.	1	2	3	4	5
I use the pictures and other graphics on the sites to help understand what I am reading online.	1	2	3	4	5
I stop occasionally and think about what I am reading online.	1	2	3	4	5
I paraphrase (say in my own words) what I read online.	1	2	3	4	5

I visualize or picture in my mind the things I read online.	1	2	3	4	5
I use the typographical features of the text (bold, italics, headings, colors, and fonts) to identify important information.	1	2	3	4	5
I critically analyze and evaluate the information I find in online texts.	1	2	3	4	5
I scroll up and down in the online text to remember and connect information together.	1	2	3	4	5
I check to see if I understand when I read new information.	1	2	3	4	5
I read information on the Internet for school purposes.	1	2	3	4	5

APPENDIX G: Teacher Questionnaire

Thank you for your willingness to participate. The following questionnaire will ask you several questions about how you use informational text in your grade 6 classroom. Informational text is a type of nonfiction that conveys information about the natural or social world (Duke & Bennett-Armistead, 2003).

Please complete the following information:

State where you currently teach _____

Number of years you have been teaching _____

Type of certification you hold _____

Your current teaching placement (grade level, etc. _____)

Your age _____ (optional)

Gender _____

Does your current school receive Title I funding? _____

1. In a typical day of classroom instruction, how frequently do you use informational text/nonfiction text? Fill in an approximate number of minutes _____.
2. In a typical week of classroom instruction, how many lessons involve informational text only? _____ Narrative text only? _____ Both informational text and narrative text? _____
3. In what ways is informational text beneficial for your students?
4. What strategies do you encourage your students to use when engaging with print-based text (informational)? _____
5. What strategies do you encourage your students to use when engaging with online informational text? _____
6. Are there any factors that currently limit your ability to use informational text in your classroom? If so, please explain these factors.

APPENDIX H: Think-aloud ActivityPractice Session:

When reading aloud, you can stop from time to time and orally complete sentences like these:

- So far, I've learned...
- This made me think of...
- This didn't make sense.
- I was confused by...
- That is interesting because...
- I wonder why...
- I just thought of...

Directions:

Now that we've practiced some think-aloud activities, you have had a chance to see what it means to "think out loud." Your job now is to locate and read an informational article about the "origins of the Internet." Please read the article carefully as you would for a class at school. Report your thoughts at any time during the reading. Tell me what you are thinking as it is going through your mind. You can report any navigational problems and any thoughts that you are having while you're reading. If you do not think-aloud, I will remind you to do this. You do not have to summarize or tell me what you've learned about the information until the end of the activity. Just read and tell me what you're thinking. This task should take you about 30 minutes.