

VanAllen, J.H. (2016). Teaching online research and comprehension skills through guided reading, *American Reading Forum Annual Yearbook* [Online]. Vol. 36.

Teaching Online Research and Comprehension Skills through Guided Reading

Jennifer H. Van Allen

Lehman College

Abstract

Many leaders in various fields are calling for increased integration of digital literacies into the school curriculum, including the ability to find and evaluate information on the Internet. However, there is minimal evidence to suggest that these skills are successfully taught to students due to many factors. The purpose of this case study was to examine the juxtaposition of online research and comprehension skills within the guided reading framework. In particular, this study explored how a fourth grade teacher implemented online research and comprehension skills in guided reading lessons along with the role changes and challenges for the student and teacher. Results showed that online guided reading had many unique differences from the traditional guided reading framework. In addition, there were many role changes for the teacher and students, technological challenges, student challenges, and instructional challenges that occurred throughout the study. Implications for modifying the traditional guided reading framework and continuing challenges are discussed.

Introduction

Digital literacy is at the forefront of conversation. According to a recent Pew Report on the digital future, “the world is moving rapidly towards ubiquitous connectivity that will further change how and where people associate, gather and share information, and consume media” (Pew Research Center, 2014, p. 1). Many business leaders and policymakers recognize that college and career readiness requires our students to use new technologies to locate information, critically evaluate and analyze that information, collaborate and connect with others, produce and share information, and achieve personal, professional, and academic goals (Coiro, 2011; Johnson & Kress, 2003; Pew Research Center, 2014). In addition, the United States Department of Education, school districts, and leading literacy professional organizations are calling for increased integration of digital literacies into the school curriculum, including the ability to find and evaluate information on the Internet (International Reading Association [IRA], 2009; National Council of Teachers of English [NCTE], 2013).

Despite these calls for increased integration of digital literacies, researchers have indicated that many teachers are not utilizing these technologies to their fullest potential in their instruction even though students prefer learning through and are more engaged with instruction that integrates interactive digital tools (Greenhow, Robelia, & Hughes, 2009; Hutchison & Reinking, 2011). In a national survey of United States teachers’ perceptions of technology integration, Hutchison and Reinking (2011) found a gap between teachers’ perceived importance of technology integration and actual use. Although almost all literacy teachers thought technology should be integrated into instruction, only 38% of teachers used technology as a presentation tool and less than 10% of teachers included technology in authentic, learner

centered ways (Hutchison & Reinking, 2011). One of the main barriers to the inclusion of technology is lack of knowledge and understanding of how to use technology to enhance teaching and explicitly teach specific technological skills to students (An & Reigeluth, 2011-2012; Hutchison & Reinking, 2011; Hutchison, 2012). As Cole (2014) noted, “It’s not about the apps or the programs. It’s about adding value to effective, thoughtful teaching” (p. 48).

When I was a literacy coach in a large urban school district in Central Florida, I often coached teachers in using the guided reading framework to focus their instruction and better meet all students’ needs. As a firm believer in the power of guided reading instruction to support and nurture blossoming readers, I began to consider how this supportive framework could be used to enhance teaching and learning of online research and comprehension skills. The purpose of this study was to examine the juxtaposition of online research and comprehension skills within the guided reading framework in an upper elementary classroom. The main research question addressed was: How does a teacher use the guided reading framework to develop students’ online research and comprehension skills? In addition, the following sub-questions were addressed:

- How does the role of the teacher and students change with the introduction of online texts during a guided reading lesson in a fourth-grade classroom?
- What challenges do the teacher and the students face with the integration of online research and comprehension within the guided reading framework?

Literature Review

Online Research and Comprehension Skills

According to IRA (2009), “to become fully literate in today’s world, students must become proficient in the new literacies of 21st century technologies” (para. 1), including the use

of search engines, webpages, email, blogs, wikis, podcasts, YouTube, etc. Additionally, 21st century employees have to manage countless amounts of information from a variety of sources daily; without the required skills needed to process information effectively, employees are ill equipped to handle their roles and responsibilities (Leu, Kinzer, Coiro, Castek & Henry, 2013; Wagner, 2008). Researchers have shown that many students are not able to effectively engage in online research and comprehension skills (Coiro, 2011; Leu et al., 2015).

So, what are the skills required by online research and how are these comprehension skills different from traditional texts? Readers use similar reading strategies when reading unbounded online texts, such as websites, audio, video, hyperlinks, and images, as when reading bounded offline, traditional texts, such as books, textbooks, and newspapers (Coiro & Dobler, 2007). All readers must rely on word recognition strategies to decode unknown words and vocabulary strategies to determine the meaning of unfamiliar words. However, online research and comprehension is not isomorphic with traditional comprehension skills (Leu, Kinzer, Coiro, Castek, & Henry, 2013). Online comprehension skills build on traditional reading strategies typically activated when reading informational texts (i.e., activating prior knowledge, making inferences, and self-regulation of reading processes), but are inherently more complex and extend the application of these reading strategies in many ways (Coiro & Dobler, 2007). For example, when activating prior knowledge readers of traditional texts must recall experiences and information related to the topic; whereas, online readers must also have additional knowledge of website structures and search engines in order to locate relevant information. In another example, all readers must infer meaning from text using context and structural cues to read between the lines. Online readers must also make forward inferences, predicting which hyperlinks will hold the information they seek and managing multilayered reading processes

(through self-chosen navigation of nonlinear hyperlinks) across multidimensional Internet spaces (encompassing multiple forms of media texts) (Coiro, 2003; Coiro & Dobler, 2007).

Leu et al. (2013) identified five processing strategies that include the skills, knowledge, and dispositions necessary for online research and comprehension: “read to identify important questions, read to locate information, read to evaluate information critically, read to synthesize information, and read to communicate information” (p. 1164). Since most Internet reading is conducted to solve a problem or answer a question, readers must begin with a driving question that exemplifies their current understanding of the issue at hand. Next, readers locate information through effective keyword generation, identify websites that may include valuable information in search engine results, and efficiently scan a website’s information for relevant facts or data. As readers process the information found within a website or across multiple webpages and sources, they must evaluate the information for bias, accuracy, and reliability and then synthesize the information to form a general understanding of their problem or answer to their question. Finally, readers often communicate new information to peers or others through email, blogs or wikis. All of these processes happen quickly, often, and simultaneously making online research and comprehension a complex activity (Leu et al., 2013). In addition, O’Byrne and McVerry (2009) found that students’ dispositions towards online research and readings task have an effect on online research and comprehension skills. Three factors were found to be significant in developing students’ dispositions of online reading: persistence, reflection, and collaboration (O’Byrne & McVerry, 2009).

A recent study conducted by Leu et al. (2015) examined the online research and comprehension skills of seventh-grade students from diverse socioeconomic backgrounds through performance based assessments. Findings indicated that while 50% of students from

economically advantaged backgrounds were able to successfully complete the tasks, only 21% of students from disadvantaged backgrounds were able to do so. In fact, Leu and his colleagues concluded that the reading achievement gap is even larger than expected because current assessments do not measure these skills. How do we guide students through these complex skills and help them develop essential dispositions necessary for online research?

Guided Reading

One of today's most popular teaching frameworks for teaching strategic reading processes to small groups of students is the guided reading framework (Ford & Opitz, 2011). The essential components of the guided reading framework date back to Betts' Directed Reading Activity (as cited in Ford & Opitz, 2011) which provided students with targeted guidance in reading strategies when confronting an unknown text. Since this first acknowledgement, the framework has been revised throughout the years to reflect researchers' concerns and educators' needs. The most recent version of this framework has been proposed by Fountas and Pinnell (2001) as guided reading and is most familiar to teachers as a common element of the reading block. According to Fountas and Pinnell (2012), "The goal of guided reading is to help students build their reading power—to build a network of strategic actions for processing texts" (p. 272). Guided reading consists of a structured five part lesson including strategic text selection based on a group of students' needs, a meaningful text introduction, individual student reading of the text, group discussion of the text, and targeted teaching points, plus two optional parts—word work and text extension (Fountas & Pinnell, 2012). Through this process, teachers prompt and support students as they engage with the text, and lead the group through an analysis, evaluation, and critique of the text with a thoughtful discussion and targeted teaching points (Fountas & Pinnell, 2012).

In addition to traditional literacy skills, such as efficient decoding strategies and purpose setting, online research and comprehension requires additional processes and strategic actions to fully comprehend text (Coiro, 2011). Fountas and Pinnell's (2012) guided reading framework includes a network of processing systems of reading that include thinking within the text, thinking about the text, and thinking beyond the text. As students think within the text, they engage in more traditional processes of reading such as solving words, reading fluency, and monitoring strategies that enable comprehension of a text (Fountas & Pinnell, 2012). Processes included in thinking beyond the text and thinking about the text require readers to engage in critical thinking as they predict, make connections, synthesize, infer, analyze, and critique the information being presented (Fountas & Pinnell, 2012). These strategic actions apply to readers in both traditional and digital literacies. When reading digital texts, the actions associated with thinking beyond and about the text must be more carefully and strategically utilized. Given the supportive nature, explicit modeling, and prompting strategies used by the teacher during guided reading instruction, the guided reading framework could be one vessel for teaching students skills and strategies required by online research and comprehension.

Theoretical Framework

New literacies theory was used to frame the context of this study. Grounded in the belief that the definition of literacy is ever changing due to rapidly developing technologies and the new discourses, social practices, and skills surrounding these technologies, Leu et al. (2013) proposed a dual level theory of new literacies. These authors agreed that the term new literacies could stand for many types of literacy resulting from multimodal texts and new technologies. Lowercase new literacies theory defines the knowledge, skills, and dispositions needed for specific areas of new literacies, specifically surrounding online research and comprehension in

this study (Leu et al., 2013). Whereas, uppercase New Literacies theory examines the broad “common and consistent patterns being found in lowercase literacies and lines of research (Leu et al., 2013, p. 1157). Therefore, uppercase New Literacies theory is based upon principles that guide understanding of lowercase new literacies as they are being explored, such as the following ideas:

- The Internet is this defining literacy and learning within our world
- Use of the Internet requires new forms of strategic knowledge and skills
- The role of the teacher is changing with the incorporation of new technologies in instruction (Leu et al., 2013)

Lowercase new literacies theory of online research and comprehension identifies more specific principles related to Internet use:

- Each reader uniquely constructs knowledge through a self-chosen reading path
- Five strategic processes are required
- Online texts are considerate and may support struggling readers
- Many students struggle with online research and comprehension without direct instruction in these skills
- Collaborative environments improve students’ comprehension of and learning through online texts (Leu et al., 2013).

Methodology

This study utilized a qualitative research design. Through an in-depth analysis of research and case study approach (Creswell, 2013), I examined how one teacher used the guided reading framework to develop students’ online research and comprehension skills in a fourth grade classroom. In addition, I explored how the role of the teacher and students changed as

online research and comprehension instruction was embedded into guided reading lessons.

Finally, I sought to understand the instructional challenges teachers faced as they taught students online research and comprehension skills and the learning challenges students faced as they navigated the complex Internet environment to find, locate, evaluate, critique, and synthesize information from a variety of multimodal sources.

Participant

I selected a small, purposive, convenience sampling (Creswell, 2013) of a fourth grade teacher at a moderately sized Title 1 elementary school in central Florida set within a large urban school district. The school served a diverse population of approximately 650 students with 43% Black, 27% White, 24% Hispanic, and 2% other races. Despite moderate access to technology, authentic use of these devices by students was scarce. Computers were most frequently used to access the computer-based instructional program required by the school, take Accelerated Reader quizzes, and take other school and district computerized assessments.

Rachel, a fourth grade teacher at the school volunteered to participate in this study and met the requirements of teaching literacy to a group of students and utilizing the guided reading framework to drive her small group reading instruction. According to Creswell (2013), case studies often require the researcher to build relationships with those at the study site to gain more in depth information from participants. This relationship was already in place because I had worked closely with Rachel for over a year as her literacy coach.

Data Sources

Interviews. An initial interview was conducted with Rachel before the start of the case study to gather relevant background information about previous teaching and educational experiences, level of comfort and experience with technology and online research skills, and her

current understanding of the types of skills students need to be successful with online research and comprehension. In addition, weekly interviews were conducted with Rachel during the course of the study. These interviews were designed to examine the guided reading components that were most useful in teaching online research and comprehension to students, the ways the roles of both the teacher and students shifted during implementation, and the teaching and learning challenges associated with the implementation of online research and comprehension in guided reading lessons. Each interview lasted approximately 15 minutes.

Daily Reflection Logs. During the study, Rachel completed daily reflection logs to gather data about the skills she chose to teach and her rationale, her approach to teaching these skills, the instructional successes and challenges she experienced daily, and the learning successes and challenges the students experienced daily. Prior to the weekly interviews, the reflection logs were reviewed by myself so that I could further probe into the decisions she made as she implemented these lessons and clarify any questions I had from the reflection logs during the interview.

Data Analysis

Findings from the teacher reflection logs and interviews were examined using thematic analysis methods (Creswell, 2013). Each interview was fully transcribed and coded for themes. Additionally, the teacher reflection log was collected and also reviewed for emerging themes. First, I read through the data set making margin notes of key ideas to get an overall sense of the data. Next, I used categorical aggregation methods to form codes of instances that repeated themselves within the data. Subsequent readings of interview transcriptions and teacher reflection logs were color coded with specific evidence for each code. I then grouped the codes into like categories based upon patterns observed in the data. Finally, I reread the data set

considering the categories and their relationship to the research questions to form final themes for describing and interpreting the case (Creswell, 2013).

Description of the Case

Rachel, a white, middle-aged female was responsible for teaching two sections of English/Language Arts classes each day. Rachel had been teaching for seven years and had acquired her professional teaching certificate through alternative certification courses and examinations after receiving her bachelor's degree in child development. Rachel was already familiar with the guided reading framework and utilized this framework daily in her small group instruction; however, she had little experience with student instruction in online research and comprehension skills. According to Rachel, technology had been central to her personal and professional life since she was young and she considered herself technology proficient. Rachel was an avid technology user at home noting that devices were her "main link of communication to my friends and family . . . where I create things, where I keep images." In addition, she believed that technology integration was important in education because "everything is technology bound."

When describing technology use in her classroom, Rachel reported that she used the SMART board daily in interactive lessons. "They (the students) get up and use it for writing to show their work . . . that allows me to see what they know." During the school year in which the study took place, Rachel indicated that her students had not really had access to the devices for research because of limited time and school mandates. "When they are on the computers, they are on the (reading) programs." However, Rachel noted that in previous years she had engaged students in small group and individual projects in which they used devices to research topics and create final products, including typed essays and PowerPoint presentations. Although Rachel

believed that teaching students how to use technology properly was an important 21st century skill, she explained that she was sometimes uneasy about allowing students open access to the Internet without close supervision “because of the access that they could potentially have to certain sites.”

Prior to the study, I provided a brief one-hour professional development (PD) session to Rachel to define online research and comprehension, guide her baseline understanding of the skills and strategies needed by students to engage in online research and comprehension, help generate instructional ideas for lesson development, provide her with resources, and provide clear expectations and guidelines for the study (see Table 1 for a description of the PD). During the initial interview, I determined that Rachel had a good working knowledge of Internet and search strategies based on descriptions of her own Internet use. For example, she described how she used Boolean search operators to narrow search results, consulted multiple web sources to verify information, and carefully critiqued information she found on the Internet by examining the creator’s credentials and looking for signs of bias. Therefore, the PD alerted her to all of the strategies identified in research as important to online research and comprehension (Leu et al., 2013), but focused more on instructional approaches and resources for lessons implementation.

After the PD, Rachel was provided with six Lenovo ThinkPad laptops running Windows 8 for a total of three weeks. Rachel self-selected a group of students to target for this instruction based on her knowledge of the group’s needs and comfort using technology. She decided to work with her high reading group (six students) because she knew their reading level would not interfere with the focus of the lessons on online research and comprehension skills. Rachel was able to implement these lessons ten days over a three-week period. The second interview was

conducted after the first week in which Rachel implemented the lessons daily with students.

Table 1

Professional Development Sequence

Purpose	Description
Provided a rationale and purpose	<ol style="list-style-type: none"> 1. Briefly defined online research and comprehension skills 2. Watched a video <i>Smart Online Search Tips for Kids</i> (https://youtu.be/pqGlhNDx7_k) 3. Discussed the necessity of online research skills in education today
Explored a topic	<ol style="list-style-type: none"> 4. Prompted to search for information on the Pacific Northwest Tree Octopus 5. Recorded actions and types of thinking that occurred during the search 6. Discussed these actions and thinking skills in relations to students
Defined five online research strategies and dispositions of online readers	<ol style="list-style-type: none"> 7. Provided an explicit definition for each, while discussing what it would look like for a student to employ the strategy <ul style="list-style-type: none"> • Read to identify important questions or solve a problem • Read to locate information • Read to evaluate information critically • Read to synthesize information • Read to communicate information 8. Discussed the need for online readers to have specific qualities <ul style="list-style-type: none"> • Persistence • Reflection • Collaboration 9. Provided examples of how these dispositions could be fostered during lessons
Introduced specific instructional approaches	<ol style="list-style-type: none"> 10. Described the Internet Reciprocal Teaching (Castek, 2008) approach 11. Described think-alouds and provided her with two examples 12. Discussed specific routines using these approaches within lessons
Provided resources for lessons	<ol style="list-style-type: none"> 13. Explored specific web resources that could be used in lesson planning <ul style="list-style-type: none"> • Common Sense Media (https://www.commonsensemedia.org/educators) • GoogleSearch Education (https://www.google.com/intl/en-us/insidesearch/searcheducation/index.html) 14. Explored the laptops students would be using
Provided specific expectations	<ol style="list-style-type: none"> 15. Discussed specific expectations of the study and nonnegotiables 16. Scheduled follow up interviews

Since she was unable to meet with the group consistently during the second week due to absences, school events, technical challenges, and schedule changes, she continued instruction into the third week. The third interview was conducted at the conclusion of the third week.

Lesson Implementation

Rachel decided to begin her implementation of these lessons by first introducing students to the computers they would be using and ensuring they had basic web searching skills. Her first and second lesson ensured the students were able to power on the devices, log in successfully, and assessed student knowledge of basic computer skills, such as powering the computer on/off, opening programs and applications, navigating to search engines, toggling between windows and applications, and using the navigation buttons on web browsers (Leu et al., 2008). During these lessons, Rachel stated that, “The students were able to do much more than expected. They just learned as they played.” However, she also noted students’ unfamiliarity with web browsers as students struggled to identify a difference between the search bar and address bar when visiting a search engine.

After Rachel was sure that students had ample skills to navigate their devices and basic navigation skills within a web browser, she introduced students to a teacher generated question, “Who has controlled Florida and how has their control or action affected others?” Rachel chose this question as a topic of study because it was directly related to an upcoming social studies unit and she thought the first part of the question would lead to skill instruction that would support students in answering the more complex second part of the question. Her next two lessons centered on using strategies to understand the question by setting up notes, breaking the question into its two parts, and creating key words or phrases for their search. During the lesson in which students set up their notes in a Word document, Rachel noted that “the students struggle with

typing, they hunt and peck,” making the lesson take longer than initially expected. To ensure that students understood the question, she started the next lesson by asking students “What should they search for? What things would they type into the search box in order to get an answer to their questions?” Rachel stated that this check for understanding at the beginning of the lesson was imperative for ensuring students understood the question and guided the types of supports she provided as students generated key words (who, controlled, and Florida) to answer the first part of their question “Who has controlled Florida?”

Next, Rachel guided students to read through and examine the structure of a search engine results page. She began the lesson by reviewing the question and key words with students. Then had students search the key words on their own computers, using the search engine of their choice, which was Google in all cases. Once students had pulled up the results list, she asked them to discuss which link was the best one to visit first. As students began to debate their choices, she led them in a discussion of knowing more about the website by looking at the URLs to determine the author or supporting organization and domain extensions (.com, .org., .edu). Rachel observed students begin using the URL in their discussions, such as, “So this is a good site because it has an organization. This is a National Geographic site or a Wikipedia.”

Rachel quickly moved on to guiding students in locating information on websites for the next three lessons while reinforcing key word generation and examining the search results page. During these lessons, Rachel helped students examine the difference between reading on a webpage versus a book or article and use the text features to locate relevant information. She reflected on a misunderstanding one student had during these lessons and how her prompting helped him gain a new understanding about search results.

One of them went to a site . . . and he was like what is this? I was like, well, let's go back. This is the one you clicked on from the search results. Read this snippet. Does this give you any sort of, you know, tell you anything about what you were looking for? He said, "no." And I asked why he clicked on it? He said he didn't know. He was just clicking to click. That's when he discovered that noticing the little brief description, snippet, of what the site is going to give you can help.

Rachel noticed that these lessons prompted students to collaborate with each other in their search for relevant information. "There's a lot more conversation . . . they are talking a lot more about what they've learned and . . . talking about what they are finding."

To conclude the study, Rachel spent the last three lessons guiding students as they read information across multiple pages in one website, with the main focus of these lessons on how to identify and use hyperlinks appropriately. Throughout these lessons, Rachel noticed that, "Students got confused and sidetracked with what they were actually looking for," as they navigated through hyperlinks to go to multiple webpages. Her guidance and prompting with questions such as, "What's your question? What are you looking for? Does this site give you any information? . . . Where do we need to go next?" were necessary to help students stay focused on their purpose, use the web browser features effectively (back and forward icons), and manage the multiple layers of a website successfully. During these lessons, students were constantly using the skills they learned in previous lessons to make sense of the information. Rachel described another instance in which a student used the timeline on the webpage to identify an incorrect assumption and then conducted another search to clarify.

One of them read something about Cuba and took it as Cuba controlling Florida. I said, "Ok, wait, but you've read and you've seen the timeline. Is Cuba on there, on the

timeline and on the site?” She said, “No, it wasn’t.” I then asked her how she felt about Cuba controlling Florida. She’s like, “I don’t know, it doesn’t make sense.” So I said, “Ok, well how would we find out if Cuba controlled Florida?” She said, “Well, I’d just do another search” . . . So she opened up another window and searched. She found that that’s one of the reasons why Spain traded with Great Britain, for Cuba. So, she made that connection.

During the course of this study, Rachel was able to introduce students to three of the five processing practices for online research found by Leu et al. (2013): read to identify important questions, read to locate information, and read to evaluate information critically. Students became much more proficient at identifying key words for their searches and using the search engine results to locate relevant websites.

Findings

The purpose of this study was to examine and explore the perspectives of one teacher’s implementation of guided reading lessons when teaching online research and comprehension skills to fourth grade students. In particular, role changes and challenges were the focus of this research.

Usage of the Guided Reading Framework

A traditional guided reading lesson generally consists of three parts (Fountas & Pinnell, 2001). The purpose of the before reading portion is to focus the lesson and orient students to the purpose. The teacher selects a text based on student needs, introduces students to the text using key vocabulary to preview the concepts in the text, and helps students set a purpose for reading the text often reminding them to engage in strategic reading processes. The purpose of the during reading part is to have students engage in strategic processing of instructional level text

with support. While the students are independently reading the text, the teacher checks in with individual students by listening to the student read aloud, asking questions, and prompting strategic actions. Finally, the purpose of the after reading portion of the lesson is to foster discussion about the text and extend students' strategic actions. After reading the text, the teacher prompts students to respond with personal reactions and questions and encourages other students to respond. Then the lesson concludes with the teacher making a couple of explicit teaching points that prompt students to reread and critique the text or practice engaging in a strategic action (Fountas & Pinnell, 2001).

A clear connection can be made between Rachel's lessons in this study and the different portions and components of the guided reading framework. At the beginning of each lesson Rachel selected a focus and helped students understand the purpose of the lesson. Additionally, she provided students with support through prompts and reminders during each of the lessons. According to Rachel, she spent most of her time during lessons "questioning them (the students) and their thinking" with probing questions and used their responses to direct their searching and reading skills, an essential component during guided reading. These probing questions facilitated student discussion, another important component of the guided reading framework. Rachel stated "they (the students) are talking a lot more about what they've learned." Finally, Rachel planned for one or two specific teaching points in each lesson and often revisited these teaching points in subsequent lessons, as often happens within the sequence of the guided reading framework.

However, Rachel also had to modify many of the components of guided reading to accommodate for the unique differences between traditional guided reading versus guided reading when teaching online research and comprehension skills, termed online guided reading

(see Table 2). Initially, when planning, Rachel realized that she would not be able to choose a common instructional level text for students in her group to read as is done traditionally within the guided reading framework. Instead, she chose to focus students on a common question for inquiry around which they would self-select texts. Although distinctly different from traditional guided reading, this structure prompted more student choice, “a high level of engagement”, and collaboration with their individual texts. For example, Rachel commented that she often heard student say “Oh, hey, go to this website, this one’s got some good information.” In addition, Rachel also found that she needed to use the introduction at the beginning of the lessons as the main teaching point in order to better focus students’ attention on a particular aspect of online research and build academic language. While this may have been the main teaching point, she noticed that other impromptu teaching points were needed throughout the lesson to address misconceptions or redirect the group, as opposed to making the teaching points at a structured time within the lesson. Then, often in response to these teaching points, she noticed that students’ discussion occurred throughout the lesson, especially during reading and after reading.

Someone will say “Oh I found this!” and then someone will correct them and say, “No, it actually says, if you read it, it says this and this is what it means.” So I just kind of just, say yeah, ok, why? Why do you think that? And then they talk about it.

In these ways, Rachel found that she needed to adapt the structure of the traditional guided reading framework to allow for more fluid movement between her prompts, teaching points, and student discussion when utilizing online texts.

Role Changes for the Teacher and Students

The traditional guided reading structure places the teacher at the center of lessons. However, the data clearly indicated that the role of the teacher and students changed when online

research and comprehensions skills were introduced within the guided reading framework (see Table 2). Rachel found that during this implementation her role changed from a guide who led a structured lesson to a facilitator that prompted and supported students as needed. “They (the students) led the conversations . . . I didn’t have to start it with them . . . I would just pop in to get them to give me more and to get them to think in a different way.” She found that students often led the lesson, started the discussion, guided other students in navigating web browsers or search engines, and helped others engage in strategy use.

I sat back and let them tell me where they were going and when I felt that they would maybe go off . . . the direction I wanted them to go, I would guide them back . . . I would ask some probing questions and they just kind of took over and went searching and trying to find their answer.

Table 2

Traditional Guided Reading Versus Online Guided Reading Roles and Components

	Traditional Guided Reading	Online Guided Reading
Components	<ul style="list-style-type: none"> • Follows typical lesson structure (Before, during, and after reading parts) • Introduction supports readers as reading • All students read a common text • Planned teaching points 	<ul style="list-style-type: none"> • Structure is fluid, frequently moving between prompting, discussion, and teaching points • Introduction is used as main teaching point • Students may be reading different, related texts or sections of text • Flexible, impromptu teaching points throughout lesson
Roles	<ul style="list-style-type: none"> • Teacher selects text • Teacher acts as structured guide • Teacher leads the conversation • Moderate level of student collaboration 	<ul style="list-style-type: none"> • Students select text with teacher guidance • Teacher acts as unstructured facilitator • Students lead the conversation • High level of student collaboration

In this way, the roles of the students changed from participants with less control of the choices made, responsible for responding to the teacher prompts in traditional guided reading, to highly

active participants, responsible for sharing their ideas, results, and strategies with others in the group. According to Rachel, “Even if they weren’t sitting next to each other, they would be talking across the table” and were “thoroughly enjoying it.”

Rachel’s implementation of lessons teaching online research and comprehension skills within a guided reading context resulted in many challenges and role changes which were met with enthusiasm by Rachel and her students. In fact Rachel stated, “they (the lessons) went really well. The kids were really excited. They loved using the touchscreen computers, the laptops, and they were really into it . . . they are literally my first students to be at that back table.”

Challenges

Technological challenges, student challenges, and instructional challenges were recurring themes within the data. These recurring themes and patterns are summarized in Table 3. The following subsections explain technology issues experienced in the case study and methodological limitations.

Technology Issues. One of the greatest challenges that occurred during the study were “the computers themselves and the struggle to keep them working.” At least four of the ten days Rachel identified issues with the devices as a challenge. For example, Rachel stated, “On the first day, we found out that two of the computers would not turn on!” Other technology issues that occurred were devices that shut down in the middle of lessons, problems connecting to the Internet, dropped connectivity during lessons, and problems signing in to the computers because other students had not previously signed out of their accounts. Rachel attempted to resolve many of these technology challenges by troubleshooting the issues herself. If her troubleshooting attempts failed, she had students pair up to share the laptops. In some ways the computer sharing

provided students with more opportunities to collaborate with others. “The students that were sharing were like, go look at this site, this is a good site. Or sometimes they said let me type this because I can type faster than you. So they helped each other out.”

Students’ Lack of Computer Knowledge. Rachel often remarked on students’ lack of knowledge about the devices and indicated that this lack of knowledge resulted in the need to extend the time spent on each lesson. In particular, typing was a consistent challenge.

I don’t think they have a lot of background knowledge with the keyboard. If they haven’t really used it, you can tell by the typing. They hunt and peck or they know just a couple (of keys) and then they have to ask where the space bar is or how do I get the question mark.

Another challenge posed by students’ lack of knowledge was how to toggle between the web browser and a Word document for note-taking. “They had trouble minimizing things because they weren’t using the tracking pad . . . so, instead of pressing minimize, they would press the exit button and would shut it out completely.” This problem compounded with students’ typing speed prompted Rachel to have students take notes on paper rather than in a Word document to save time. Finally, students did not know how to proceed when they came across a computer that was still logged in under another student’s account.

Sometimes we would get the computers that weren’t logged off from the previous student that had it . . . Some of them would just shut it down so . . . it would take that extra couple of minutes for them to log in and get onto the Internet.

Table 3

Themes Identified in Data Sources

Themes	Examples in the Data Sources
Successes	<ul style="list-style-type: none"> • There's a lot more conversation (Interview) • Students are very engaged and are learning a lot (Reflection Log) • They just learned as they played (Reflection Log)
Challenge-Technology Issues	<ul style="list-style-type: none"> • The struggle to keep them (the computers) working (Interview) • Two of the computers would not turn on (Interview) • Computer died on us during the lesson (Reflection Log)
Challenge-Students' Lack of Knowledge	<ul style="list-style-type: none"> • I don't think they have a lot of background knowledge with the keyboard (Interview) • The students struggled with the difference between a search bar and the address bar (Reflection Log)
Instructional Challenge-Distractions on the Devices	<ul style="list-style-type: none"> • Sometimes they would get off task with all of the new features (Interview) • Getting students to stay on task and not just click on the hyperlinks to go exploring (Reflection Log)
Instructional Challenge-Student Engagement	<ul style="list-style-type: none"> • They . . . don't necessarily engage in the group discussion (Interview) • The other two were just kind of very quietly taking notes (Interview)
Instructional Challenge-Time-Consuming Lessons	<ul style="list-style-type: none"> • I plan for a lot and get through only a bit of it (Interview) • It would take that extra couple of minute for them to log in and get onto the Internet (Interview) • It takes the students a long time to read and take notes and then search for what they didn't understand (Reflection Log)
Role Changes-Teacher	<ul style="list-style-type: none"> • I sat back and let them tell me where they were going (Interview) • I would ask some probing questions and they just kind of took over (Interview) • I am allowing students to do the majority of the talking within the group (Reflection Log)
Role Changes-Students	<ul style="list-style-type: none"> • They (the students) led the conversations (Interview) • Even if they weren't sitting next to each other, they would be talking across the table (Interview)

Instructional Challenges. Throughout the study, Rachel also noted many instructional challenges that she faced from classroom management with the devices to the amount of time each lesson took. While the devices kept students engaged in the lessons, they were also a distraction. For example, Rachel noted, “I think they had so much fun with these computers that sometimes they would get off task with all of the new features . . . instead of using the keyboard to type, they would pull up the keyboard on screen.” When browsing the Internet for information related to their questions and problems, students were easily distracted by hyperlinks. Rachel reflected on one instance in which two students were sidetracked.

We did that in Wikipedia. You can click on the word Spain and it will take you to what they have on Spain for that particular part . . . I had two students that continued to click and click and click and then were totally not on anything that had to do with it (the topic). So I was like let’s stay focused. This is how we can get in trouble with hyperlinks. We just keep clicking to learn about things, but it’s not what we need to focus on.

In addition, Rachel struggled to engage her shy and reserved students in group discussions. This posed a significant problem for Rachel because she felt those students were missing out on the rich discussion and learning that was occurring among the other students. “They are doing what they need to be doing . . . but they don’t necessarily engage in the group discussion.” Lastly, Rachel shared her frustration with the amount of instructional time needed to implement these lessons. “I plan for a lot and get through only a bit of it.”

Methodological Limitations

Case study designs allow for limited generalizations because of the limited sample size and bounded context to which the study is connected (Creswell, 2013). This study was conducted using a convenience sample at a diverse, Title 1 school serving students in a large,

urban school district. Teachers at this school must consider the specific needs of these students when targeting lessons for instruction. These considerations may be vastly different from the needs of students in different populations. Additionally, the limited sample size of one teacher who was technologically proficient does not lead to a consideration of teachers who struggle to use technology in their personal and/or professional lives. Finally, the length of the study did not allow for the teacher to teach students all of the processing strategies recommended by Leu et al. (2013), leading to limited findings for ways to support teachers in teaching these strategies.

Discussion

Students are increasingly using the Internet to complete schoolwork and view the Internet as a way to access information, collaborate with others, get advice, and store information (Levin & Arafah, 2002). Yet, researchers suggest that schools are not adequately preparing students with the research skills to effectively analyze, evaluate, and synthesize information they receive on the Internet (Leu et al., 2015). Other researchers suggest that schools are not adequately preparing students to be digitally literate, which includes “knowing how and when to use which technologies and knowing which forms and functions are most appropriate for one’s purposes” (Leu et al., 2015; Greenhow et al., 2009).

Even though Rachel faced many challenges and had to navigate many role changes with the implementation of online research and comprehension skills within her guided reading lessons, the successes were evident. These students developed and practiced valuable online research skills, as they learned more about the history of Florida. In addition, Rachel saw evidence of student growth in their discussion and approaches when searching for information and reading information from a website. Rachel’s perspectives and experiences help us infer that the guided reading framework may indeed be a viable way to introduce online research and

comprehension skills to students. However, her experiences also imply that Fountas' and Pinnell's (2012) conceptualization of the guided reading framework may need to be reworked to address the role changes that occur for teachers and students during online guided reading.

When selecting text for traditional guided reading, the teacher considers a group of students' abilities and reading levels (Fountas & Pinnell, 2012). In online guided reading, the teacher may choose a topic or concept for inquiry; however, students will likely generate a multitude of search results, resulting in students who have chosen different, yet related texts to read during the lesson. In both traditional and online guided reading, the teacher must prompt and support students to employ strategic actions as they are reading the text or engaging in online inquiries (Fountas & Pinnell, 2012; Coiro, 2011). Online guided reading requires the teacher to prompt and support extended strategic actions focusing students on how to maneuver through the Internet, varied website structures, and multimodal texts in addition to critical reading skills. When teaching online guided reading, student collaboration is imperative to student success (Coiro, Sekeres, Castek, & Guzniczak, 2014). Consequently, in online guided reading, student collaboration and social interactions must occur during and after students read the text. Finally, the teacher must allow for a flexible structure with impromptu teaching points and fluid movement between prompting, discussion, and reflection.

Throughout the study, Rachel continually commented on students' high levels of enthusiasm and motivation in these lessons. These lessons provided a higher level of student choice than traditional guided reading structures as students made decisions that set their own reading path based on their own set purpose for reading. Researchers have shown that increased student choice in lessons leads to increase engagement and motivation (Guthrie & Klauda, 2014). Therefore, possible implications exist for modifying traditional guided reading structures

to allow students more choice over the specific texts they read. For example, a teacher could choose several books for the group and the students could vote on the specific text they would like to read. Alternatively, the teacher could have students select different texts around a given topic or concept and have students discuss the similarities and differences between their individual texts.

Finally, more research is needed to develop a continuum of skills surrounding online research and comprehension skills. In traditional guided reading, the teacher typically forms groups of students for guided reading instruction based on common strengths and needs (Fountas & Pinnell, 2001). Then teachers select specific teaching points to extend students skill based on a continuum of literacy skills that describe specific behaviors and understandings at different literacy levels (Fountas & Pinnell, 2010). Although Leu and his colleagues (2008) have created a checklist of skills for online research and comprehension set in different phases that increase in complexity, this checklist does not fully describe specific behaviors and understandings students must develop to obtain specific levels of proficiency with online research skills. However, such a continuum would help teachers assess students' proficiency levels and subsequently plan for instruction.

Continuing Challenges

As eloquently stated by Towndrow and Vallance (2013), "laptops and other mobile devices are not merely disruptive to the status quo, they are, in large part, a replacement for it" (p. 270). One of the challenges to successful integration of online research and comprehension skills into instructional practices, such as guided reading, is changing teacher beliefs and attitudes. Teacher beliefs and attitudes about technology integration can have a great effect on digital implementation initiatives (Hutchison & Reinking, 2011; Straub, 2009). In this study, the

teacher was more confident in her own use of technology, felt supported and encouraged to experiment with technology by school administration, and was, therefore, willing to take risks. However, not all teachers are as willing to explore new practices with technology. Teachers must perceive that the school administration values technology integration, shows flexibility in implementation, and supports teachers through their successes and failed attempts (Straub, 2009). Therefore, understanding and shaping teacher beliefs and the school culture through professional development, providing time for experimentation, and providing time for collaborative work with other teachers is necessary (Straub, 2009). Strong school leadership that is sensitive to these conditions and is able to neutralize problems will increase teachers' willingness to integrate online research and comprehension during guided reading lessons.

As noted by previous research, other challenges to successful implementation of online research and comprehension instruction in the guided reading framework may stem from inadequate access to technology, limited technical support with devices, software incompatibility, and technical failures (Chou, Block, & Jesness, 2012; Rosen & Beck-Hill, 2012; Towndrow & Vallance, 2013). These school factors must be addressed prior to implementation to limit teacher frustration.

Another continuing challenge is providing inservice and preservice teachers with proper training and support. Both preservice teacher programs and professional in-service trainings focus on how to use programs or applications and offer ideas for integrating these programs or applications into lessons (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012). However, educators are calling for professional learning experiences that guide them in integrating technology into their instruction, focusing on instructional approaches as opposed to programs, and extended time and support for their early attempts at technology integration

(Hutchison, 2012). Preservice teacher programs should work to integrate technology practices into existing courses and consider creating new courses that address new literacies, such as online research and comprehension.

Research must continue to inform educators of instructional practices that facilitate student learning of online research and comprehension skills. This study helps to inform the field on possible instructional approach that could be utilized to develop upper elementary students online research and comprehension skills. However, questions still remain. What is the impact of a guided reading context on students' online research and comprehension skills? To what extent do these skills transfer to students' individual research skills? One fact remains. In order to equip our students with the digital literacy skills they need to succeed in college and careers, teachers must incorporate instruction in online research and comprehension into daily lessons. The rewards to students are great as they learn the necessary skills to effectively find, evaluate, and communicate in global online environments.

References

- An, Y., & Reigeluth, C. (2011-2012). Creating technology-enhanced, learner-centered classrooms: K-12 teachers' beliefs, perceptions, barriers, and support needs. *Journal of Digital Learning in Teacher Education*, 28(2), 54-62. doi: 10.1080/21532974.2011.10784681
- Chou, C. C., Block, L., & Jesness, R. (2012). A case study of mobile learning pilot project in K-12 schools. *Journal of Educational Technology Development and Exchange*, 5(2), 11-26. Retrieved from <http://jetde.theti.org/evaluate/index.do?groupId=3>
- Coiro, J. (2003). Exploring literacy on the Internet: Reading comprehension on the Internet: Expanding our understanding of reading comprehension to encompass new literacies. *The Reading Teacher*, 56(5), 458-464.
- Coiro, J. (2011). Talking about reading as thinking: Modeling the hidden complexities of online reading comprehension. *Theory Into Practice*, 50(2), 107-115. doi: 10.1080/00405841.2011.558435
- Coiro, J., & Dobler, E. (2007). Exploring the online reading comprehension strategies used by sixth-grade skills reading to search for and locate information on the Internet. *Reading Research Quarterly*, 42(2), 214-257. doi: 10.1598/RRQ.42.2.2
- Coiro, J., Sekeres, D., Castek, J., & Guzniczack, L. (2014). Comparing the quality of third, fourth, and fifth graders' social interactions and cognitive strategy use during structured online inquiry. *Journal of Education*, 194(2), 1-15.
- Cole, J. (2014). It's not about the apps. *Literacy learning: The middle years*, 22(1), 48-51.
- Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: SAGE Publications.

- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education, 59*, 423-435. doi: 10.1016/j.compedu.2012.02.001
- Ford, M. P., & Optiz, M. F. (2011). Looking back to move forward with guided reading. *Reading Horizons, 50*(4), 225-240.
- Fountas, I. C., & Pinnell, G. S. (2001). *Guiding readers and writers: Grades 3-6*. Portsmouth, NH: Heinemann.
- Fountas, I. C., & Pinnell, G. S. (2010). *The continuum of literacy learning: Grades PreK-8*. Portsmouth, NH: Heinemann.
- Fountas, I. C., & Pinnell, G. S. (2012). Guided reading: The romance and the reality. *The Reading Teacher, 66*(4), 268-284. doi: 10.1002/TRTR.01123
- Greenhow, C., Robelia, B., & Hughes, J. E. (2009). Learning, teaching, and scholarship in a digital age: Web 2.0 and classroom research: What path should we take now? *Educational Researcher, 38*, 246-259. doi: 10.3102/001389X09336671
- Guthrie, J. T., & Klauda, S. L. (2014). Effects of classroom practices on reading comprehension, engagement, and motivations for adolescents. *Reading Research Quarterly, 49*(4), 387-416. doi:10.1002/rrq.81
- Hutchison, A., & Reinking, D. (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: A national survey in the United States. *Reading Research Quarterly, 46*(4), 312-333. doi: 10.1002/RRQ.002
- Hutchison, A. (2012). Literacy teachers' perceptions of professional development that increases integration of technology into literacy instruction. *Technology, Pedagogy, and Education, 21*(1), 37-56. doi: 10.1080/1475939X.2012.659894

- International Reading Association. (2009). *New literacies and 21st century technologies: A position statement of the International Reading Association*. Retrieved from http://www.reading.org/Libraries/position-statements-and-resolutions/ps1067_NewLiteracies21stCentury.pdf
- Johnson, D., & Kress, G. (2003). Globalisation, literacy, and society: Redesigning pedagogy and assessment. *Assessment in Education*, 10(1), 5-14. doi: 10.1080/09695940301697
- Leu, D. J., Coiro, J., Castek, J., Hartman, D. K., Henry, L. A., & Reinking, D. (2008). Research on instruction and assessment in the new literacies of online reading comprehension. In C. C. Block, S. Parris, & P. Afflerbach (Eds.), *Comprehension Instruction: Research-based Best Practices*. New York: Guilford Press.
- Leu, D. J., Forzani, E., Rhoads, C., Maykel, C., Kennedy, C., & Timbrell, N. (2015). The new literacies of online research and comprehension: Rethinking the reading achievement gap. *Reading Research Quarterly*, 50(1), 37-59. doi: 10.1002/rrq.85
- Leu, D. J., Kinzer, C. K., Coiro, J. L., Castek, J., & Henry, L. A. (2013). New literacies: A dual-level theory of the changing nature of literacy, instruction, & assessment. In D.E. Alvermann, N.J. Unrau, & R. B. Ruddell (Eds.), *Theoretical Models and Processes of Reading* (6th ed.) (p. 1150–1181). Newark, DE: International Reading Association.
- Levin, D., & Arafah, S. (2002). *The digital disconnect: The widening gap between Internet savvy students and their schools*. Washington, DC: Pew Internet and American Life Project. Retrieved from <http://www.pewinternet.org/2002/08/14/the-digital-disconnect-the-widening-gap-between-internet-savvy-students-and-their-schools/>
- National Council of Teachers of English. (2013). *The NCTE definition of 21st century literacies*. Retrieved from <http://www.ncte.org/positions/statements/21stcentdefinition>

- O'Byrne, W. I., & McVerry, J. G. (2009). Measuring the dispositions of online reading comprehension: A preliminary validation study. *National Reading Conference Yearbook*, 58, 362-375.
- Pew Research Center. (2014). *Digital life in 2025*. Retrieved from http://www.pewinternet.org/files/2014/03/PIP_Report_Future_of_the_Internet_Predictions_031114.pdf
- Rosen, Y., & Beck-Hill, D. (2012). Intertwining digital content and a one-to-one laptop environment in teaching and learning lessons from the Time to Know program. *Journal of Research on Technology in Education*, 44(3), 225-241. doi: 10.1080/15391523.2012.10782588
- Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Educational Research*, 79(2), 625-649. doi: 10.3102/0034654308325896
- Towndrow, P. A., & Vallance, M. (2013). Making the right decisions: Leadership in 1-to-1 computing in education. *International Journal of Educational Management*, 27, 260-272. doi: 10.1108/09513541311306477
- Wagner, T. (2008). Rigor redefined. *Educational Leadership*, 66(2), 20-25.