It's Time to Turn the Digital Page

PRESERVICE TEACHERS EXPLORE E-BOOK READING

Lotta C. Larson

Today's e-book technologies offer new possibilities to manipulate and control text factors that support comprehension and enhance the reading experience.

At the end of last semester, a group of first-year teachers returned to campus to share their newfound classroom experiences, teaching tips, and survival stories with the preservice teachers enrolled in my literacy methods course. Although questions about classroom management and lesson planning dominated the discussion, specific topics relating to literacy instruction also arose. When a sixth-grade teacher was asked to describe her worst first-year experience she answered, without hesitation, "My school had just bought new Nooks and the principal asked me to use these devices to teach reading....I had absolutely no idea what I was doing. I had never before read an e-book, and I definitely had no clue how to teach reading with these things....Sadly, my colleagues were of no help as they, too, had very little experience with e-books. I was so stressed I cried." The audience of preservice teachers appeared

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sympathetic, but they also breathed a sigh of relief knowing they would be better prepared if faced with a similar situation.

E-books are not a new phenomenon, but the recent deluge of digital reading devices, including the Amazon Kindle, Barnes and Noble Nook, and Apple iPad, has added to the convenience and frequency of e-book reading. In fact, the number of adult e-book readers quadrupled in the past two years (Rainie, Zickuhr, Purcell, Madden, & Brenner, 2012). Because today's reading devices are portable, relatively affordable, and equipped with improved battery life and storage capacity, readers of e-books are no longer confined to desktop computers.

In addition, the availability of electronic books is now virtually unlimited compared with only a few years ago, when it was difficult to find quality titles, particularly in the realm of children's and young adult literature (Larson, 2007). In May 2011, Amazon. com's sales of digital books surpassed those of print texts for the first time (Bloomberg News, 2011). The *2010 Kids and Family Reading Report* (Scholastic, 2010) suggested that one third of children ages 9–17 would read more books for fun if they had access to

e-books, including children who already read five to seven days per week as well as those who read less than once each week.

Because children express such interest in e-book reading, it is important that educators and researchers understand how to effectively integrate this technology into educational settings. According to the International Reading Association (2009),

> to become fully literate in today's world, students must become proficient in the new literacies of 21-st century technologies. As a result, literacy educators have a responsibility to effectively integrate these new technologies into the curriculum, preparing students for the literacy futures they deserve. (n.p.)

However, as exemplified by the first-year teacher quoted in the excerpt, integrating technology can be an overwhelming and intimidating experience.

Digital Reading Comprehension

In addition to learning from traditional literacies of paper, pencil, and print books, students in today's classrooms encounter a plethora of new literacies, including digital texts and online communication experiences. Rooted in cognitive constructivist theory, the New Literacies Perspective (Leu, Kinzer, Coiro, & Cammack, 2004) recognizes that new literacies are constantly changing and that the relationship between literacy and technology is transactional. Students need new literacies to skillfully tap into the potential of emerging and evolving technologies. However, "when we use technology in new ways, we also transform the technology itself, creating additional new literacies in the process" (Leu et al., 2004, p. 1593). Teachers are continuously challenged to transform reading instruction in response to constantly emerging and evolving technologies.

As readers actively read for the purpose of comprehension, they think of many things and apply various strategies. For example, they activate prior knowledge; create mental images; examine the text's structure and organization; and notice symbols, images, and other literary devices. These activities can be categorized as reader factors and text factors (National Reading Panel, 2000).

Reader factors address the aspects that the reader brings to the reading experience, such as background knowledge, engagement with text, and strategies used while reading. Text factors represent the author's contributions to the reading experience, including the author's ideas, the organization of ideas, and the words used to express those ideas (Tompkins, 2010). Irwin (1991) further explained that comprehension occurs when the reader uses prior knowledge and the author's text to construct meanings that are useful to the individual reader within a specific context.

The Common Core State Standards recognize the need to prepare students for future success by embedding rigorous reading standards and calling for literacy learning through the use of technology. The standards also emphasize an increased focus on text complexity (National Governors Association Center for Best Practices [NGA Center] & Council of Chief State School Officers [CCSSO], 2010). Similar to text and reader factors, text complexity, or the inherent difficulty of reading and comprehending a text, considers both qualitative and quantitative evaluation of the text, along with considerations for matching individual readers to text and task.

With today's e-book technology, readers encounter new possibilities to manipulate and control text factors to suit their individual needs. Although a reader may not physically change print text, some e-texts can literally change as the reader uses tools and features available within the digital format (Eagleton & Dobler, 2007; Reinking, 1998). It is important to note that digital texts come in many different forms. Internet texts, for example, often involve multimodal features such as hyperlinks, audio, video, and images.

In addition to using and understanding conventional reading strategies and skills, successful online readers "efficiently use search engines, navigate multilayered Web sites, and monitor the appropriateness of their pathway" (Coiro, 2009, p. 59). Dalton and Proctor (2008) also point out that digital text characteristics are more remarkable on the Internet, where texts are not constrained by time, space, and links to additional and alternative information.

Some e-books may entail multimodal features (i.e., a hyperlinked table of contents or text-to-speech capabilities), but e-books accessed on digital reading devices such as Kindles or Nooks are mostly linear. Because both e-book and online texts are considered digital, effective readers must negotiate which reading strategies pertain to a particular source and context, recognizing that e-books come in many different forms. In other words, just as traditional print texts require students to use a wide range of comprehension strategies based on both reader factors and text factors, so, too, do digital texts. For example, effective online readers sift through incongruent

sources and "skim and scan" large amounts of layered texts (Alderton, 2010), but skimming and scanning are not effective comprehension strategies for readers of a linear e-book text.

E-Book Reading in Literacy Methods

To prepare future teachers to use and teach with a wide range of technologies, these tools need to be infused into both content and methods courses. It is important that preservice teachers are provided with opportunities to use the technology tools within specific contexts and disciplines, not just learn about them in the abstract (Darling-Hammond et al., 2005). As the International Reading Association (2003) proposed: "Teacher education programs must get preservice teachers off to a running start on acquiring the knowledge, skill, and will it takes to be an effective teacher" (n.p.).

With these sentiments in mind, I asked 49 preservice teachers to participate in an e-book reading experience to help them better understand transformations in digital texts and their impact on reader comprehension. In hopes of supporting educators of varying technology prowess and teaching backgrounds, what follows is an account of our e-book journey and what we learned in the process.

Methods, Participants, and Data Collection

During the fall semester of 2011, 49 preservice teachers, including 3 males and 46 females, were enrolled in two sections of my methods course "Teaching Literacy in Grades 3–6." The course, an introduction to the contents, methods, and materials of the upper-elementary literacy curriculum, consisted of 30 campus sessions and 15 practicum sessions in intermediate-level classrooms.

As part of the course requirements, the participants read several children's and young adult books. One of these books, the 2011 Newbery Medal winner *Moon Over Manifest* by Clare Vanderpool, was required in e-book format. I had three objectives in mind when creating this assignment. I wanted the preservice teachers to (1) gain firsthand experience in reading an e-book, (2) consider text factors and reader factors that support comprehension, and (3) learn how to integrate e-book reading into their future classrooms.

Moon Over Manifest portrays a powerful account of historical fiction, recounting how 12-year-old Abilene Tucker spends the summer of 1936 in a small Kansas town, where she learns about her family's past while facing an uncertain future. Similar to the print copy, the e-book version contains mostly linear text, with the only hyperlinked feature being the table of contents. Although participants reading on Internet-accessible devices (e.g., computers, iPads) had access to online resources, this e-book, regardless of the version or software used, did not include links to audio, video, or other forms of multimodal content. The novel has no illustrations, but the print version does contain many passages where different fonts and formatting are used to represent newspaper columns, advertisements, and letters. Such visual enhancements were diminished in the e-book version.

When implementing e-book reading in K–12 classrooms, teachers must carefully consider the technology available, how and where to access and download the e-books, and the cost involved (Larson, 2007). In this case, I provided the preservice teachers with resources from which they could purchase and download the e-book (see Table 1) and informed them that they could use any technology device/reader software of their choice. (Only two participants lacked access to a computer or other reading device; they borrowed Amazon Kindles from me for the duration of the study.) Collectively, the group used seven different types of technology devices/reader software, with laptops/Adobe Reader being the most common, followed by portable digital readers (Kindle, Nook, iPad) and cell phones. Several participants downloaded the book on multiple devices, such as a desktop computer and a cell phone.

To learn more about the preservice teachers' prior knowledge of and experience with e-book technologies, I asked them to fill out a prereading questionnaire (see Figure 1). They then read the book over a three-week period, which included nine class sessions at the university. In these sessions, we discussed the story and shared the e-book reading experience in small groups and whole-class conversations. Lesson plans and instructional suggestions for how to effectively integrate e-book reading into K–12 classrooms were also shared. At the conclusion of the book, the preservice teachers completed a postreading reflection (see Figure 2).

Using qualitative case-study techniques (Stake, 2000), I aggregated comments from the pre- and postreading reflections in search of meaningful information and emerging patterns. Additional data

TABLE 1 Resources for E-Book Reading

Resource	URL	Website description
Digital readers		
Amazon Kindle	www.amazon.com/kindle	Information about the Kindle e-reader
Barnes & Noble Nook	www.barnesandnoble.com/NOOK	Information about the Nook e-reader
Sony Reader	store.sony.com/Reader	Information about the Reader e-reader
Digital reader apps		
Kindle	www.amazon.com/gp/feature .html?ie=UTF8&docId=1000493771	Free reader apps for PC, Mac, iPad, Blackberry, etc.
B&N Nook	www.barnesandnoble.com/u/ free-nook-apps/379002321/	Free reader apps for PC, Mac, iPad, Blackberry, etc.
iBook	itunes.apple.com/us/app/ibooks/ id364709193?mt=8	Free reader app for Apple products
Google Play Books	https://play.google.com/store	Free reader apps for the Web and many different devices
Reader software		
Adobe Reader	www.adobe.com	Free e-book reader software for PC and Mac
eReader	www.ereader.com/ereader/software/browse.htm	Free e-book reader software PC, Mac, and handheld devices
Microsoft Reader	www.microsoft.com/reader	Free e-book reader software for Windows-based devices
E-books		
Google Play Books	play.google.com/store	Purchase e-books to read on the Web or multiple devices
eBooks.com	www.ebooks.com	Purchase e-books for PC, MAC, Sony Reader, mobile phone, and other portable devices.
Fictionwise.com	www.fictionwise.com	Purchase e-books compatible with multiple formats of e-book software
Project Gutenberg	www.gutenberg.org/	Free e-books to read on PC and digital devices

sources included field notes, lesson plans, and audio-recorded classroom discussions. Students' digital e-book notes and bookmarks were also collected and reviewed.

Prior Knowledge and Experience

Prior knowledge and experience are crucial reader factors that affect comprehension. Research recognizes that background knowledge has the potential to be a powerful means of improving learning; indeed, the connection between individuals' prior knowledge and reading comprehension has been clearly demonstrated (e.g., Adams & Bertram, 1980; Allington, 2002). When teachers integrate e-book reading into a traditional literacy program, they should consider not only students' prior knowledge of and ability to relate to the literature but also their prior experiences with the technology itself.

FIGURE 1 Prereading Questionnaire

e-Book Reading—*Moon Over Manifest*—Prereading Questionnaire

1. On what type of device will you read the book? (Kindle, iPad, laptop, desktop, etc.)

2. From where did you purchase/download the book? How much did it cost?

3. Did you run into any technical difficulties or other issues while purchasing/downloading the book? Did you need to install any reader software to be able to open the book on your device?

4. What is your prior experience with e-books? What kinds of e-books have you read (if any)? On what device(s)?

5. How do you feel about this assignment? (Are you excited about the opportunity to read an e-book? Are you worried about anything?)

FIGURE 2   Postreading Reflection

e-Book Reading—*Moon Over Manifest*—Postreading Reflection

- On what type of device(s) did you read the book? (Kindle, iPad, laptop, desktop, etc.) If you used more than one device, explain the advantages/disadvantages with each.

- If you had a choice, how would you prefer reading *Moon Over Manifest* (digital vs. print text)? Please explain why.

- What did you notice about your own reading habits and behaviors while reading an e-book? As a reader, how did you approach the text differently?

- Did reading an e-book support or hinder your reading comprehension? Explain why and how.

- Which e-book tools/settings did you use? Please provide specific example(s).

- Imagine yourself teaching with e-books. Explain how you can use e-books to teach reading skills and strategies. Please provide some specific examples/suggestions.

- Picture yourself teaching with e-books/digital texts in your future classroom. Explain what concerns you have and how e-book reading may benefit your students.

- How has your attitude/perception toward e-book reading changed during this experience?

- What else can you tell me about this experience? I truly welcome your comments.

Of the 49 preservice teachers, only one had previously read *Moon Over Manifest*. Because the fictional plot takes place in the home state of our university, all participants were familiar with the story's setting and many of the historical events referred to in the book. As part of their teacher-education program, they had already completed two other literacy-related courses and, consequently, had pertinent knowledge of authentic literature and common reading strategies.

As a group, they were somewhat familiar with instructional technologies from an introductory educational technology course and had observed teachers use technology in earlier field placements. However, before embarking on this experience, most of them (63%) had no prior experience with e-books or were familiar with only textbook versions of e-books (8%). Less than a third of the preservice teachers (29%) had previously read authentic literature in e-book form.

Interestingly, the level of e-book reading experience among the preservice teachers closely reflected the experiences of children. In 2010, about one fourth of children (ages 6–17) had read an e-book, and 57% expressed a great interest in doing so (Scholastic, 2010). Many of the preservice teachers (47%) also reported to be interested in the upcoming e-book experience (comments included "I'm excited to learn how to use this technology"; "my mom won a Kindle this summer, and now I can finally learn how to use it"), whereas 29% claimed to be excited but also expressed some reservations ("I'm nervous because I have difficulties reading on a computer screen"; "I'm worried I'll run into trouble downloading the book"). On the other hand, 12 participants (24%) stated that they were not at all looking forward to reading an e-book ("I don't like to read on a computer screen"; "a hardback copy that can be used in my future classroom would be better").

Sharing this information with the preservice teachers, I accentuated the importance of knowing our students well and preassessing not only content knowledge but also technology skills, along with attitudes and dispositions.

E-Book Tools and Features

During the three-week period, the preservice teachers read chapters of the e-book outside class and spent campus sessions discussing the readings while learning how to use and teach with e-books. Many e-books come equipped with a wide range of tools and features, including note-taking tools, highlighters, text-to-speech or read-aloud options, built-in dictionaries, search features, and settings for customizing the digital page. I began each session by introducing a new e-book tool and exploring how it can be used to support comprehension and engagement of individual readers.

To model these strategies, I placed a digital reading device on a visual presenter so that the preservice teachers could follow along visually. I explained that teachers using computers or tablet-based e-books can connect the technology directly to an LCD projector. In addition to modeling, I shared many examples and anecdotes from the K–12 classrooms where, over the past few years, I have observed teachers and students engage in digital reading. To help the preservice teachers further conceptualize what teaching with e-books in the K–12 classroom entails, I asked them to review and discuss digital reading/e-book lesson plans posted on the IRA/NCTE-supported website ReadWriteThink.org (see Table 2).

Throughout the nine sessions, I emphasized the importance of examining the different features afforded by each reading device before introducing them to students, but not to feel pressured to become

TABLE 2 ReadWriteThink.org Lesson Plans on E-Books/Digital Reading	
Lesson plan	**URL**
Digital Word Detectives: Building Vocabulary With E-Book Readers	www.readwritethink.org/classroom-resources/lesson-plans/digital-word-detectives-building-30838.html
E-Book Reading and Response: Innovative Ways to Engage With Texts	www.readwritethink.org/classroom-resources/lesson-plans/book-reading-response-innovative-30670.html
Going Digital: Using E-Book Readers to Enhance the Reading Experience	www.readwritethink.org/classroom-resources/lesson-plans/going-digital-using-book-30623.html

true experts right away. In the new literacies classroom, the teacher's role changes to one of facilitator of literacy learning environments, rather than the "single source for all literacy knowledge" (Leu et al., 2004, p. 1599). In truth, as students become familiar with the e-book tools, they will often discover new and unique ways to adapt these tools to support their own comprehension processes (Larson, 2010).

In technology-rich K–12 classrooms, learning is often socially constructed within new literacies as students assume the roles of experts and teachers (Leu et al., 2004). Similarly, as I introduced each e-book tool to the preservice teachers, they contributed by sharing which tools they had used and how these features supported story comprehension and reading engagement. Because of a wide variety of devices and reader software, the use and availability of tools varied greatly (see Table 3). What follows is a brief overview of common e-book tools and features discussed, tips for how teachers can introduce these tools to their students, and examples from our on-campus sessions.

Font Size. Most e-book technologies allow for changes in font size. In prior e-book studies, elementary-age students reported feeling more confident as readers after increasing the font's point size (Larson, 2010). McCabe et al. (2006) suggested that a benefit of larger fonts in college textbooks may be readers who are more engaged. In this case, two thirds of the preservice teachers adjusted the font size while reading. Kristy (all names are pseudonyms), a confident reader, shared, "I like my font relatively small....It makes

me feel like I've gotten more done when I flip a page." Brett, who described himself as a slow reader, increased the font size: "Making the font bigger helped me stay focused, especially when I read late at night."

In our discussions, the preservice teachers recognized that although individual readers may benefit from customizing the text, teachers consequently encounter a dilemma when their class is no longer "on the same page." In other words, instead of referring to traditional page numbers, teachers must contemplate alternative location numbers, percentage read, chapter headings, or other common points of reference.

Highlighting. Most (84%) of the participants highlighted or underlined words or text passages while reading. Sarah, a first-time e-book user, explained, "Because it was an e-book, I highlighted a lot more. I don't ever highlight in storybooks, because I was always taught to respect books, and I've never quite gotten over that....So it was nice to be able to highlight and not feel guilty about it." Jennifer, a frequent user of the highlighter, stated that "highlighting made me look deeper into the text and actually ask myself questions about it as I was reading." In our class discussions, the participants shared that they highlighted a wide range of words and passages, including unfamiliar or difficult vocabulary, names of characters and places they wanted to remember, and key passages or important facts.

As a class, we explored additional ideas for using the highlighting tools with students to meet

TABLE 3 Preservice Teachers' Use of E-Book Tools and Features								
Tool	**Font size**	**Highlight/ underline**	**Notes/ marks**	**Book marks**	**Dictionary**	**Find/ search**	**Internet**	**Color/ brightness**
# of Users	31 (63%)	41 (84%)	28 (57%)	38 (78%)	23 (47%)	15 (31%)	4 (8%)	5 (10%)

expectations of the English language arts (ELA) Common Core State Standards (NGA Center & CCSSO, 2010). For example, students can determine and highlight "words and phrases as they are used in a text, including figurative and connotative meanings" (R.L.6.4). Teachers may also ask students to mark weekly spelling/vocabulary words, parts of speech, story elements, or text features.

Notes/Marks. Much like writing notes in the margins of a paperback book, readers of e-books can add digital notes within the story. Over half the preservice teachers accessed the note-taking tool while reading. Lauren explained an advantage of the digital notes: "I don't enjoy writing in [print] books, so this was a creative way for me to interact with the text." Some recorded personal responses ("OMG—that lady Sadie, sounds just like my grandmother...I miss her so much"), whereas others made predictions ("I think Gideon is Abilene's father") or commented on facts or historical tidbits ("There were definitely no labor laws back then").

While discussing the potential of the note tool, I explained to the preservice teachers that inserting notes directly onto the page of the e-book allows the reader to engage in ongoing response to the unfolding plot. Students may record thoughts, questions, or general observations. The Common Core State Standards (NGA Center & CCSSO, 2010) challenge students to "read closely to determine what the text says explicitly and to make logical inferences from it" (R.CCR.1). The teacher can later review students' notes to assess comprehension of and engagement with the story. In other words, the digital note tool offers insights into the reader's meaning-making process and serves as a conduit to ongoing response writing (Larson, 2010).

Bookmarks. Readers of e-books can insert a digital bookmark to easily return to a specific location in the story. In addition to marking the last page read, many of the preservice teachers used this feature to tag pages to which they wanted to return frequently or to avoid scrolling or flipping through large amounts of text. For example, as they read *Moon Over Manifest*, which involves a vast number of characters, they realized the convenience of bookmarking the "character pages," a two-page list of all characters' names and brief descriptions of their roles. Frequent revisits to these pages helped the preservice teachers keep track of the characters and, subsequently, make sense of the story.

Digital Dictionary. Another common e-book feature is a built-in dictionary, which makes the process of looking up words both quick and convenient. Of the preservice teachers, 73% accessed the dictionary. In the postreading questionnaire, Abby, an initially reluctant e-book reader, explained how this tool supported her reading comprehension: "I would simply click on a word to find the definitions rather than using text clues or guessing. It actually helped me remember the vocabulary better."

To emphasize the potential of the digital dictionary, I occasionally assigned a vocabulary list with words that I assumed would be unfamiliar and/or of interest to the preservice teachers. As they encountered each vocabulary word within the chapters, they accessed the dictionary, highlighted the word, and inserted a digital note defining the term. Often, they also provided meaningful examples or ways the vocabulary could be used within a sentence. During class sessions, these notes were retrieved and discussed within small groups of peers.

Furthermore, participants discovered ways to use the digital dictionary in their future classrooms to help students meet expectations of vocabulary acquisition and use, according to the ELA Common Core State Standards (NGA Center & CCSSO, 2010). For example, students in grade 6 should "consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech" (L.6.4c) and "verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary)" (L.6.4d).

Find/Search. Similar to the Find function in a Word or PDF document, some e-books allow users to search for specific words or phrases within the book. When discussing a particular text passage in class, the participants simply typed in a keyword they associated with that passage to quickly locate the relevant text. Other times, they searched for a character's name to help recall how he or she first entered the story. In other words, much like readers often flip back through chapters, e-book readers may use the find/search feature to quickly navigate texts and avoid scrolling through large portions of the book.

Internet Access. Participants using tablets, laptops, or cell phones had instant Internet access while reading.

In class, we discussed how access to the Internet can provide students with unlimited background information and opportunities to go beyond the book and delve deeper into the story. Brooke, who read the story on an iPad, stated: "When Abilene [the main character] was looking for roots and stuff, I looked up those plants. That made that whole chapter stand out, and my comprehension of the book was a bit higher because I explored the book just that much more."

Internet access provides opportunities for enriching the reading experience through multimodal aspects such as audio and video, even when the e-book text is mostly linear. On the other hand, Internet access comes with great responsibilities and the need for teachers to review user policies and expectations. For some readers, online access may be distracting. As Alyssa explained, "Because I was reading on a laptop, I kept checking Facebook and my e-mail and other stuff, and I had a hard time concentrating on the book."

Color/Brightness. Only 10% of the participants adjusted the brightness and/or color of the screen as they were reading. This feature is unavailable, and unnecessary, on black-and-white digital readers, but it can be helpful when reading on a computer screen or iPad. Before discovering this feature, Derek, who used a laptop, complained of the e-book reading experience, noting that "the brightness of the light bothered my eyes. I'm just not used to reading on-screen for long times." However, after changing the page color from a stark white to a sepia tone and adjusting the light level, he was able to read for longer periods.

Additional e-book tools and features discussed in class but not used by the preservice teachers include options to customize text factors, including page orientation, margin size, and line spacing. Early e-book studies suggest that personalizing such settings may particularly support unique individuals, including striving readers or visually impaired students (Larson, 2010).

Furthermore, some e-books offer text-to-speech or read-aloud capabilities that can help students pronounce and understand unfamiliar vocabulary

Personalizing e-book settings may support unique individuals, including striving readers or visually impaired students.

or text passages. Using technology and digital texts also has the potential to develop students' reading fluency, a key skill of proficient readers (Thoermer & Williams, 2012). To individualize the listening experience, students may adjust related preferences, including reading rate, male/female voice, and volume control.

Reader Reflections

As the book came to an end, the preservice teachers reflected on their use of e-book tools and their ability to affect certain reader and text factors. They also considered how their attitudes regarding e-book reading might have changed and how reading an e-book ultimately affected their comprehension of the story.

In the postreading questionnaire (see Figure 2), 26 of the 49 preservice teachers (53%) felt that reading an e-book ultimately supported their reading comprehension, compared with reading print text. The following qualitative comments illustrate the participants' perceptions of the e-book reading and its positive impact on comprehension:

- "Going to the Internet and looking up facts relating to the story made a big difference. I think anytime you can keep reading even when you have questions, then the reading process is not interrupted, and comprehension is supported."

- "Without being able to see the cover of the book, it allowed me to paint my own picture in my head of what Abilene and all the characters looked like." (Note: Most e-books come with a generic cover that lacks the original art/illustrations of the print edition.)

- "With the e-book, I was not worried about the number of pages left, which helped me slow down and comprehend. With print text, I'm too focused on how many pages I have left."

As exemplified in the following comments, some participants (16%) believed the e-book ultimately hindered their reading comprehension:

- "I had to stop myself from 'skimming,' because that's what I usually do when I read from a computer screen."

- "The tools and features were distracting, and I was so focused on features that I forgot what I was reading."

- "Reading on a computer was really inconvenient because it wasn't portable. When I tried to read on my phone, the font was too small and I couldn't adjust it."

About one third of the participants (31%) stated that they thought the e-book neither hindered nor supported their reading comprehension:

- "A text is a text to me, and I don't feel like I read or understood any differently than I would have otherwise."

- "I obtained the same information—the story was the same as in print text."

- "The book was hard to keep up with because of the amount of characters and the setting changed several times....I felt like it would be confusing either way....[The e-book] did not affect my comprehension."

Take Action
STEPS FOR IMMEDIATE IMPLEMENTATION

✓ Carefully consider the available e-book reading technology in your school. If downloading e-books on laptop or desktop computers, make sure the correct reader software is installed. Collaborate with your district's technology staff to avoid problems with firewalls during the downloading process.

✓ Determine instructional goals. Rather than focusing on the technology itself, consider how the e-book technology can best be used to support literacy instruction. Decide how to effectively use the e-book in a variety of settings, including whole-class instruction, guided reading, literature circles, and individual reading experiences.

✓ Use a visual presenter and/or projector to introduce the e-book's many tools and feature and, in subsequent lessons, to model various reading strategies.

✓ Carefully observe students' reading behaviors and use of digital reading strategies. As students read and respond to e-books, it is important to note how they access and use the technology's tools and features (font size, dictionary, text-to-speech, etc.). Review students' notes and highlights regularly. Encourage students to share how the e-book technology supports their individual reading processes.

At the end of the three-week reading experience, the participants were also asked: If given a choice, how would you prefer to read *Moon Over Manifest* (digital vs. print text)? Despite that over half the participants believed the e-book reading experience supported their individual comprehension, 65% reported they would have preferred reading a print copy, whereas only 35% favored the digital version.

However, as the participants elaborated on their answers and explained the advantages and disadvantages of the respective versions, it became clear that the issue is more complex than just "print vs. digital." For example, many recognized that they appreciated the tools and features afforded by the e-book but missed "cuddling up with a book" and did not like staring at a computer screen for a long period. Such concerns are not unique to this group; many adult readers of e-books often miss the physical features of traditional literature, for they truly enjoy turning pages, smelling the inside covers, and physically "hugging" a book (Larson, 2008).

Children, on the other hand, often blur the lines between print and e-book reading. To them, it is not an either/or but, rather, two equally appreciated events that can be enjoyed separately or in tandem (Larson, 2007). It is, of course, important that teachers not let strong personal preferences interfere with their willingness to provide students with both new and traditional literacy experiences.

Closing Thoughts

In today's classrooms, the integration of technology offers a new vision and dimension for reading instruction as students encounter digital literacies in addition to the more traditional literacies of paper, pencil, and print texts (International Reading Association, 2009). Even though e-book texts are digital, they are often linear as well. As illustrated in this article, however, the many tools and settings available on e-readers allow readers to literally change text factors that, in print texts, are generally stagnant.

Unfortunately, educators have a tendency to consider emerging technologies in ways reminiscent of print-based instructional materials (Nicholls & Ridley, 1997). We should acknowledge multiple types of digital texts and support students as they discern which reading strategies to apply. The rapid changes

in e-book technologies demand a progressive research agenda that examines the use of different types of e-books in authentic classrooms across multiple content areas.

Furthermore, teacher competency with new literacies requires knowledge, skills, and dispositions that are interwoven in complex ways with content, context, and pedagogy (McPherson, Wang, Hsu, & Tsuei, 2007). Providing authentic experiences in teacher-preparation programs will support both pre- and inservice teachers in their quest to create meaningful and productive learning contexts.

Darling-Hammond et al. (2005) further emphasized the importance of granting preservice teachers opportunities to participate in technology-infused experiences and actively reflect upon how these technologies affect and function within disciplines. The preservice teachers in this study had little knowledge of e-book reading prior to participating in this experience. The postreading reflections revealed that even after finishing the e-book, their expertise and dispositions still varied greatly.

However, they all acknowledged that it is time for educators to get on the same (virtual) page and begin integrating digital reading experiences into traditional literacy programs. As with any technology integration, the road is not always smooth, and there will be hurdles to overcome. In her postreading reflection, Morgan eloquently expressed some of these concerns:

> I think the idea of integrating digital texts and e-books is great for students. I would definitely utilize this if the technology was present. I think that it would make the students excited to read and provide them with enjoyment. I also believe that reading electronically can enhance students' overall reading experience, their critical thinking, and reading comprehension. However, a few concerns I have are that it would be hard to assign reading as homework if you were reading on laptops, for instance, because not all students may have access to that at home, and the schools may not be willing to check out the technology for the students to take home. Another concern I have is that students will forget about reading physical books and lose that love. As with everything, balance is the key factor.

Morgan's concerns about technology access and the need for new and traditional literacies are genuine and valid. It is important to emphasize that e-book reading should not aim to replace print books. In reality, avid e-book readers are likely to read more print literature than those who do not read e-books at all (Rainie et al., 2012). This news is reassuring for teachers who worry that new literacies may supersede traditional ones.

It is time to dismiss such concerns, for effective instruction of new literacies can enhance and extend students' abilities to read and write for authentic purposes (Karchmer-Klein & Shinas, 2012). As a teacher educator, I believe it is my responsibility to provide future teachers with the skills and support needed to effectively integrate and develop new literacies. I hope that participating in the e-book reading experience has afforded Morgan and her peers the competence and confidence to pioneer e-book technologies in their future classrooms while encouraging a new generation of readers to embrace both digital and print texts.

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ONLINE RESOURCES

- The eBook Reader: www.the-ebook-reader.com
  This website contains a plethora of information about e-book readers and related subjects.

- *Can Electronic Reading Devices Replace Classroom Texts?* www.edutopia.org/electronic-readers-versus-classroom-texts)
  Ongoing discussion about the potential impact of e-readers in today's classrooms.