

The Literacy Skills and Motivation to Read of Children Enrolled in Title I: A Comparison of Electronic and Print Nonfiction Books

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Abstract This mixed method study, grounded in Vygotsky’s sociocultural theory, examines if nonfiction e-books read independently by children enrolled in a summer reading program will increase vocabulary, improve comprehension, and enhance motivation to read as compared to children reading nonfiction trade books with adult support. Findings indicate improved vocabulary identification in all intervention groups (i.e., e-book, adult support, and independent) after reading. However, there was no significant difference in improvement regarding vocabulary or motivation to read when comparing the intervention groups. Although not significant, the results indicated the post-test mean was higher than the pre-test mean for the teacher group for motivation for recreational reading. Conversely, in all other areas of motivation for reading, the pre-test mean was higher than the post-test mean, indicating lower motivation for reading at the end of the summer program. The study also found that children with adult support gave the most accurate retellings, followed by the e-book group, and finally the independent group. Overall, the interview data across all groups included positive attitudes regarding

the use of e-books and a preference for reading e-books rather than regular trade books.

Keywords Early childhood · Mixed method study · E-books · Literacy

Background

Within today’s society, children’s everyday lives often include exposure to an array of media that commences before they enter school; they think and process information differently than students who came before them (Prensky 2001). Accordingly, “literacy educators have a responsibility to integrate... new literacies into the curriculum to prepare students for successful civic participation in a global environment” (International Reading Association 2009, p. 1). Educators must consider the effects of media, both positive and negative, on children’s literacy development. It is also critical that educators are cautious when selecting and using technology with children. The National Association of Young Children and the Fred Rogers Center for Early Learning and Children’s Media (2012) recommend that technology and interactive media should be “used intentionally by early childhood educators, within the framework of developmentally appropriate practice, to support learning goals established for individual children” (p. 3). Thus, teachers should use technology within a high-quality pedagogical literacy framework.

A form of technology commonly experienced by children at a very young age is electronic books, also known as e-books (de Jong and Bus 2003). E-books can assist children in developing early literacy skills. In today’s schools, e-books have become an essential part of classroom

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instruction and reading programs (Follett 2013; Jones and Brown 2011; Yokota and Teale 2014). This type of book include oral dialogue and may also incorporate interactive legibility and pictures as well as multimedia additions, such as sounds, animations and videos, which can enhance children's emergent literacy (de Jong and Bus 2003, 2004; Medwell 1996; Morgan 2013; Schugar et al. 2013). With their multimodal features, e-books have literally transformed traditional reading, and whether children read independently or with an adult, e-books allow them to control the actions of the book (Salmon 2014).

E-books can support early literacy development in many ways, such as providing scaffolding to support reading by offering children the use of text tools that help with pronunciation, vocabulary, book language and understanding of narration (Bus et al. 2009; Grant 2004; Medwell 1998; Morgan 2013). These books also provide animated cues such as pictures, multimedia and audio, and embedded vocabulary aids such as dictionary features, to support comprehension (Doty et al. 2001), vocabulary (Grant 2004; Higgins and Cocks 1999; Roskos et al. 2009; Shamir and Korat 2009), and word recognition skills (de Jong and Bus 2002; Karemaker et al. 2008).

For children who struggle with reading or who are at risk for learning disabilities, e-books can be especially helpful. As a form of assistive technology, e-books enhance a print-based literacy curriculum by adding multimedia effects that support children during reading (Rhodes and Milby 2007). A study by Shamir and Shlafer (2011) concluded that exposure to well-designed multimedia e-books for kindergarten children at risk for disabilities improved performance in phonological awareness and concepts of print. Following an e-book intervention, Shamir and Baruch (2012), found that 52 preschool children in the experimental e-book group improved vocabulary and mathematics skills as compared to children who were involved in regular preschool activities. Many struggling readers lack motivation for reading because of the negative experiences they have during the reading process, including the lack of choice in what they read and a lack of authentic reading materials (Padak and Potenza-Radis 2010). The use of interactive texts can enhance children's reading motivation (Ciampa 2012b; Glasgow 1996; Maynard 2010). In a review of literature on e-book features that support literacy development in young children, Salmon (2014) found multimedia and interactive text features have the potential to increase reading fluency. Larson (2010) found that children enjoyed reading e-books that permitted personal note taking and provided them control during their reading engagement.

Just as teachers must select quality children's literature, they must also carefully consider the e-books they choose and use in the classroom. Poorly designed e-books can be

detrimental to reading comprehension (Morgan 2013). E-books that include "hot spots" that are incongruent with the storyline and that allow students to click to activate sound and animation can be a distraction to students during reading (Shamir and Korat 2006). Additionally, to support comprehension, media effects within e-books should be consistent with text (Labbo and Kuhn 2000). In a literature review of e-book features, Salmon (2014) concluded, "electronic books offer literacy support to ongoing reading development and are not a substitute for reading instruction or adult involvement" (p. 90).

Vocabulary Development

Children's vocabulary acquisition can be enhanced while reading e-books when they are familiarized with the text language (Bus et al. 2009; Grant 2004). Although traditional literature and e-books share commonalities (e.g., both contain print), they are also dissimilar. Unlike traditional literature, e-books contain multimedia features (e.g., dictionaries with definitions and animated illustrations) which can promote children's word recognition skills (de Jong and Bus 2002; Karemaker and 2008). Instant feedback, such as word pronunciation while reading e-books, is also an important support for vocabulary development (Grant 2004; Medwell 1998; Shamir and Korat 2009). Medwell (1996) concludes that children's greatest advancements in word accuracy occur when they read an e-book with teacher support. Teachers are able to scaffold and extend children's vocabulary as they interact with e-books. When comparing the shared reading between parents and children of printed text to that of e-books, overall talk and abstract talk was greater for the e-books (Kim and Anderson 2008). Unfortunately, adults tend to be only minimally involved as children are reading e-books (Roskos et al. 2009).

Comprehension Support

E-books continue to become more and more sophisticated with in-text features aimed at supporting comprehension. Features, including interactive media such as hyperlinks to provide background on text content, embedded questions, and highlighted information, can support comprehension, but they must be congruent to the text, thus enhancing meaning (Dalton and Proctor 2008; Labbo and Kuhn 2000; Zucker et al. 2009). Incongruent interactive multimedia features, those unrelated to the text or with a distractive nature, may actually impede children's comprehension of the story (Dalton and Proctor 2008; Labbo and Kuhn 2000; Lefever-Davis and Pearman 2005; Zucker et al. 2009). Pearman (2008) states that the multi-sensory dimensions of

CD-ROM storybooks aid children's comprehension. E-book features, such as those that provide children with immediate feedback on word meanings and pronunciations, can also promote children's comprehension (Grant 2004; Medwell 1998). E-books that provide pronunciation of text can lessen the dependency on decoding and allow children to focus attention on meaning making (Pearman 2008). Although a body of research supports the use of e-books for comprehension development (Ciampa 2012a; Doty et al. 2001; Grimshaw et al. 2007; Labbo and Kuhn 2000), much of the research focuses on the use of literal questions and retelling to evaluate children's comprehension with the use of CD-ROM e-books (Doty et al. 2001; Matthew 1997; Pearman 2008). In a study comparing traditional print books to e-books in a third grade classroom, Jones and Brown (2011) found that text format, be it e-book or print book, was not as important to comprehension and motivation as was the storyline, such as the plot, characters, and setting. Other studies have shown small to moderate e-book comprehension effects. In a meta-analysis of studies looking at the effects of e-books on comprehension and decoding in pre-K through grade 5, Zucker et al. (2009) found small to medium comprehension effects. Their research did indicate that e-books can be beneficial for early readers' comprehension and fluency development.

Increased Motivation

Motivation to read is an essential component of supporting students who are engaged in the reading process. Students engaged in reading are more likely to spend time reading and research shows increased motivation for reading can improve reading competency (Ciampa 2012c; Guthrie and Wigfield 2000; Morgan and Sideridis 2006; Sideridis and Scanlon 2006). Teachers play a critical role in promoting motivation for reading by providing students with interesting and engaging books (Miller 2012). E-books provide a text platform that is appealing to children and improves student motivation for reading (Ciampa 2012b; Jones and Brown 2011; Lefever-Davis and Pearman 2005). Shared reading of e-books between adults and children also can support children's motivation to read (Guthrie and Davis 2003). Many studies have shown there are benefits of e-books on reading engagement over traditional books (de Jong and Bus 2002; Moody et al. 2010). E-books have shown to be motivators for reluctant readers (Adam and Wild 1997) and for children with reading disabilities (Glasgow 1996). The interactive multimedia, animations, sound, word-by-word sound matching and 3D features of e-books enhance students' engagement in and motivation to read (Ciampa 2012b; de Jong and Bus 2002). However, more interactivity does not always equate to higher

engagement. In a study examining e-book interactivity, Wang et al. (2014) found the low-interactivity group (book pace control only) outperformed the high interactivity group (book sequence and media control) on Chinese character writing, attention and enjoyment.

Theoretical Framework

Research maintains that children's scaffolded learning experiences are vital to their understanding (Vygotsky 1978; Wood et al. 1976). Vygotsky coined the term zone of proximal development, which is the difference between what a learner can do with and without assistance. In the zone of proximal development, learning occurs through meaningful, scaffolded experiences with adults or more competent others. Scaffolding includes "the adult 'controlling' those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (Wood et al. 1976, p. 90). Effective scaffolding experiences include the consideration of the individual needs of children and diverse strategies (Berk and Winsler 1999). Various literacy development theories are comprised of scaffolded experiences (Moody 2010). Supportive adults and quality books provide scaffolds for children who are learning to read (Smith 2004). Developmentally appropriate, quality e-books, also known as interactive books, disc books, CD-ROM storybooks, computer books, digital books, and talking books (de Jong and Bus 2003), are one form of books familiar to digital natives that can provide scaffolded experiences. Emergent literacy skills (i.e., writing, phonological awareness, word recognition) of young children can be developed while reading high-quality e-books (Shamir and Korat 2009). Children's e-books may include interactive features that support their reading development, such as highlighted text that is read aloud, opportunities for independent reading, graphics and animations that closely match the text, individualized reading pace, and dictionary features (Karemaker et al. 2008). Likewise, e-books can support children's comprehension development by providing multimedia and dictionary features that assist them in defining words when they encounter unfamiliar vocabulary (Verhalen et al. 2006).

Aim of the Study

Prior research has provided evidence that e-books can contribute to early language acquisition, including vocabulary and comprehension attainment, in children. Additionally, research supports the use of e-books as a way to improve attitudes and motivation toward reading. The

potential use of e-books in early childhood education, specifically nonfiction text, however, has not been fully investigated. The purpose of this study was to determine if independent use of nonfiction e-books improved children's vocabulary, comprehension and motivation. This mixed method study included forty-one children, who had just completed first, second, or third grade and enrolled in a 19 day Title I summer reading program within a public school district in the eastern United States. Title I is a Federally funded program that assists students in meeting academic standards in mathematics, reading, and language arts and is designed to identify students deemed at-risk for failure in these areas. Students in this study were eligible for the summer reading program if they were enrolled in the Title I reading program in the school district the prior school year or were receiving reading support through a district-funded reading program. The research addressed the following questions:

Does the practice of children independently reading nonfiction e-books improve their vocabulary development, comprehension, and/or motivation to read as compared to children reading regular nonfiction trade books with adult support or children reading independently?

What are children's views regarding the reading of e-books or traditional picture books in print format?

Methodology

Participants

This study included forty-one children, who had just completed first (39 %), second (46 %), or third (15 %) grade and enrolled in a 19 day Title I summer reading program. A public school district in the eastern United States implemented the summer reading program in two of their elementary school buildings. All students in the summer reading program received Title I services during the prior school year and parents gave consent for their children to participate in the summer reading program. District hired elementary certified teachers, reading specialists, and teacher-certified instructional aides delivered the program. Of the forty-one children, 76 % were male and 24 % were female. Two students were classified English Language Learners.

Components and Procedures

At the beginning of the summer reading program, district teachers identified students' reading levels (Fountas and Pinnell 1996) based on the *Developmental Reading Assessment* given during the end of the school year. The researchers selected leveled non-fiction printed text and e-books to match each child's reading level. During the last

7 days of the Title I summer reading program, district teachers completed a series of tasks as a part of this research study. At the beginning of the summer reading program, teachers administered the *Elementary Attitude Reading Survey* (McKenna and Kear 1990) to the children as a pre-test to gauge their motivation for reading. Teachers had each child date the survey and then read aloud the directions as well as each question in the survey. For each question, teachers asked children to circle the picture of Garfield that described how they felt when they read a book. Prior to reading a printed book or e-book, teachers administered a pre-test individually to each child using vocabulary lists pertaining to the leveled texts (see Appendix, ESM) based upon the children's reading levels (Fountas and Pinnell 1996). An example of a vocabulary list for *Pluto: A Dwarf Planet* (Adamson 2008) includes: crater, dwarf planet, Earth, moon, planet, scientist, spacecraft, surface, telescope, and Sun. The teachers placed a checkmark on the line if the children read the word correctly. If the children read it incorrectly, the teachers recorded all student attempts of the word.

Researchers randomly assigned children, from each grade level, to one of three different groups. The first group worked alone with an unseen nonfiction e-book. Teachers provided them with an orientation regarding navigation through the web-based text (Mackin Educational Resources 2012) and use of the text features. Children were also told they were permitted to reread any pages of the e-book and that they would be asked to retell the book. The second group worked with the teacher and with an unfamiliar nonfiction printed book. For any adult-child interaction, teachers followed a script (see Table 1) while reading the text. The third group served as the control group. They received no interventions and interacted independently with an unseen nonfiction printed book. Teachers told children that they were allowed to re-read pages of the text and that they would be asked to retell the book. Each group read the book one time. Following the reading of the book, comprehension was assessed using one-on-one retellings where teachers scripted children's retelling of the text. Additionally, children were administered a post-test, individually, using the same vocabulary pertaining to the text. Then, rotation occurred in order for each group of children to receive the same instruction. Semi-structured interviews, regarding children's attitudes and beliefs about e-books and regular trade books, were conducted. Teachers asked the children the following questions: How do you feel about reading an e-book? Please explain your answer. What do you like, if anything, about reading an e-book? Please explain. What do you dislike, if anything, about reading an e-book? Please explain. If you had to choose a book to read, would you choose a regular book or an e-book? Please explain. During the last day of the program,

the *Elementary Attitude Reading Survey* (McKenna and Kear 1990) was administered as a post-test.

Data Sources and Materials

The *Elementary Attitude Reading Survey* (McKenna and Kear 1990) was used to assess and evaluate motivation for reading. E-books, on the Mackin website (Mackin Educational Resources 2012), were read by children assigned to the e-book group using desktop computers with Internet access. Children assigned to the teacher group and to the independent group used regular print trade books. Teachers followed a script as children read the regular nonfiction text. Vocabulary lists for each leveled text were supplied. The script, “Interview for Children,” was used by the teachers to gain insight into the children’s views about motivation to read e-books. Teachers recorded the retellings on regular notebook paper to assess comprehension.

Data Analysis

District teachers responsible for teaching the program collected data, and the children read leveled, nonfiction text. Teachers supplied written records to the principal investigator and co-investigator. Qualitative measures with narrative analysis were used for the oral retellings and interviews. The researchers transcribed children’s retellings and interview data, recording data on a word processing program. The researchers used a system of coding and categorizing to organize the data. A code was assigned to each child using the following coding system: male/female, grade entering in the fall, Fountas and Pinnell (1996) reading level by letter, group type (i.e., teacher/e-book/independent), assigned number beginning with 001, and the school building within the district. The constant comparison method was used with the interviews, which allowed the researchers to look for similarities in the data (Lincoln and Guba 1985; Strauss and Corbin 1990). Direct quotes from the children were recorded and analyzed. Themes and categories for the children’s interviews regarding reading (i.e., e-books or regular books) emerged. A paired samples *t* test was the quantitative method used in the study. A web-based program, VasserStats (Lowry 1998-2012) was used to calculate the paired *t* test.

Summary of the Findings

Comprehension: Retellings

In regards to the children’s comprehension, the most accurate retellings were from children with the group with adult support, followed by the e-book group, and finally the

independent group. Overall, the children within the group with adult support provided the most detailed oral summaries of the nonfiction. In order to determine the level of accuracy for each retelling, the investigators analyzed each text, and established and recorded the main details. A sample of the children’s retellings of the main details of a text is included in Table 2. Upon completion of the children’s retellings, the investigators evaluated the children’s degree of accuracy regarding the particular texts that were read and frequencies were calculated (see Table 3).

Vocabulary Word Identification and Motivation to Read

A paired sample *t* test was used to determine whether there was a statistically significant mean difference for vocabulary word identification before and after reading a print book or an e-book in each of the three intervention groups: teacher, e-book and independent. The study found significant gains in children’s vocabulary attainment across all three-intervention groups, with the most gains made by students assigned to the teacher group. Table 4 shows the mean pretest and posttest scores and standard deviations.

To determine whether there was a significant mean difference for motivation for reading at the start of the summer reading program as compared to motivation for reading at the conclusion of the summer reading program, investigators used a paired sample *t* test. The study found no statistically significant difference between the pre-test and post-test scores across all intervention groups on motivation to read (full scale) or for academic reading or recreational reading (subscales), except in one instance. The study found a statistically significant difference between the pre-test and post-test scores in the e-book group for motivation to read for recreational purposes ($p < .05$). In all but one case, the pre-test mean was higher than the post-test mean indicating students in all intervention groups had higher motivation for reading prior to the start of the program. The one exception was that of the teacher group for motivation for recreational reading; although not significant, the pre-test mean was higher than the post-test mean indicating that students had a higher motivation to read at the conclusion of the reading program. See Table 5 for mean pre-test and post-test scores and standard deviations for motivation for recreational reading.

Interviews: Children’s Feelings Regarding E-books to Determine Reasons for Motivation

At the completion of the Title I summer reading program, each child was interviewed regarding his/her attitudes about reading e-books and preferences regarding e-books

Table 1 Script for teachers to follow while reading regular trade books with children

Look at the front cover and the back cover. What do you think the book will be about?

Do you know what type of book this is? (Determine if the child understands that it is nonfiction text. If not, prompt him/her.)

What do you already know about (insert subject of book here)?

Why do you think we are going to read this book?

Take a *picture walk* through the book. What do you notice?

Take a word walk through the book. What do you notice? Are there any tricky words that you are unsure of? (Scaffold by discussing vocabulary prior to the reading.) Preview the table of contents and glossary if the child does not notice them on his/her own

Have the child read the text aloud with teacher support as necessary. Upon completion of the reading, ask the child to retell about the book and record his/her retelling

Table 2 Sample of children's retellings of main details for *Lions* (Ipcizade 2008)

Child's retelling—E-book group	"Lions stay in a group together. They have their own territory. The mother protects its babies from hyenas and other dangerous animals. Mother lion gets the food for the babies. The big daddy, he yells to all the other lions to warn them."
Child's retelling—teacher group	"First, the lions live in Africa in the Savanna forests. It tells you the lions live in prides. The lions hunt for wild beasts, buffalo, and zebras. The lions roar to protect their cubs. Lions have manes to protect their head when they fight. When they fight, the mother tries to keep the cubs safe."
Child's retelling—control group	"Lions live in Africa. They hunt food—buffalo, zebras. Swallow meat without chewing it. Roar very loud."

Table 3 Frequency of children's accuracy for oral retellings

(%)	E-book group frequency	Teacher group frequency	Control group frequency
21–30	1	0	1
31–40	0	2	1
41–50	4	1	3
51–60	0	1	1
61–70	2	0	3
71–80	4	6	4
81–90	0	1	0
91–100	2	2	1

or trade books to determine *why* they may or may not be motivated to read e-books. After analyzing the children's interviews, three main themes emerged and they include: Responses to Reading E-Books, Pros and Cons of E-books, and Preference for Type of Book Read and Rationale. Direct quotes from the children's interviews are included (see Table 6). The children openly shared their feelings about reading e-books. They discussed reasons why they enjoyed reading e-books as well as why they disliked them. In addition, teachers asked children their preference for reading e-books or trade books and to explain their responses.

Within the theme, Responses to Reading E-books, overall thirty-seven of the forty-one children expressed that they felt "happy" and "good" about reading an e-book and that they are "fun" to read. A child stated, "I think it's fun because sometimes I have to read it and sometimes it reads to me. I like when it reads it to me first then I get to read it

myself next." Two children somewhat enjoyed reading e-books. Children stated, "I like it because sometimes it can be fun," and "I sort of like reading them." Two children described that they did not enjoy reading e-books. A child commented, "I like reading regular books better because I can see them better."

Under the theme, Pros and Cons of E-books, the children described a variety of responses. Thirty-eight of the forty-one children mentioned an array of multimedia features connected to positive views about reading e-books, which include: access to a variety of e-books on various topics, learning new material, working online and on computers, and audio features. Children stated that they liked reading e-books because they are new, interesting, and easy. They also liked learning new vocabulary, reading for pleasure, reading with a friend, and choosing their own books. A child said, "You can go on at home. You can listen to it. It reads it for you." Two children stated they did

Table 4 Vocabulary pre-test and post-test scores

Measure	Pre-test mean (SD)	Post-test mean (SD)	Post-pre differences		
			Mean (SD)	<i>t</i>	<i>p</i> (2-tailed)
Teacher group (N = 13)	49.31 (8.20)	81.15 (21.73)	31.85 (23.32)	4.92	.000**
E-book group (N = 14)	53.43 (24.10)	67.64 (24.77)	14.21 (15.90)	3.35	.005**
Independent group (N = 14)	56.07 (22.88)	69.64 (.88)	13.57 (15.33)	3.31	.006**

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 5 Motivation for reading

Measure	Pre-test mean (SD)	Post-test mean (SD)	Post-pre differences		
			Mean (SD)	<i>t</i>	<i>p</i> (2-tailed)
Recreational					
Teacher group (N = 13)	27.69 (9.50)	27.85 (5.84)	.15 (6.45)	.09	.933
E-book group (N = 14)	26.57 (8.16)	23.29 (8.34)	-3.29 (4.23)	-2.90	.012*
Independent group (N = 14)	26.79 (7.64)	25.86 (7.97)	-.93 (3.87)	-.90	.386
Academic					
Teacher Group (N = 13)	28.38 (8.88)	26.69 (9.11)	-1.69 (6.49)	-.94	.365
E-book group (N = 14)	25.14 (6.65)	22.79 (9.18)	-2.36 (6.11)	-1.44	.173
Independent group (N = 14)	27.07 (8.73)	25.21 (7.23)	-1.86 (4.38)	-1.59	.137
Full scale					
Teacher group (N = 13)	56.08 (16.95)	54.54 (13.99)	-1.54 (11.09)	-.50	.626
E-book group (N = 14)	51.71 (14.42)	46.07 (17.18)	-5.64 (9.77)	-2.16	.05
Independent group (N = 14)	53.86 (15.99)	51.07 (14.67)	-2.79 (7.13)	-1.46	.167

*** $p < .001$, ** $p < .01$, * $p < .05$

not like anything about e-books. When asked what he/she liked if anything about reading an e-book, a child explained, "Not much. I just don't like looking at the computer screen." One child did not provide a response. For the cons of e-books, twenty-three of the forty-one children said that there was nothing that they disliked about reading e-books. The remaining eighteen children described the following reasons for disliking e-books: audio features (i.e., speed of narration), pages turning too slow, availability of e-book topics, access to titles, uninteresting titles, difficulty level of the text, the screen was difficult to view, pausing the text and having to listen to the entire page read again, forgetting how to use functions, rereading text, and having to read with the audio. A participant explained, "I always forget how to go back."

For the theme, Preference for Type of Book Read and Rationale, thirty-three of the children stated that they prefer reading an e-book rather than a regular trade book due to the following reasons: easy to locate on the computer, availability, fun to read, contained highlighted text, included audio features, provided a variety of topics, learned more difficult vocabulary, used a button to turn the pages, and allowed for ease, while reading on the computer. When

asked which type of book was preferred (i.e., e-book or trade book), a child said, "E-book because you can read along with the story. You can take turns to read." The seven children who stated a preference for reading regular trade books provided the following reasons: the availability of books at the library, print was easier to view, dislike of the audio features on e-books, wanting to hold the books, and the ability to easily transport regular trade books. A child stated that he/she preferred, "A regular book because of the reasons I talked about before." The child's previous comment regarding a dislike for e-books included, "I cannot hold the book in my hand. The voice on the computer talked at a snail-ish pace." One child expressed an inclination for reading both e-books and regular trade books.

Discussion

Reading is used throughout our everyday lives and includes a variety of texts, both traditional print and electronic. What makes this study distinctive from other studies that integrate e-books, includes that children enrolled in a Title

I summer program read non-fiction e-books. Children were randomly assigned to one of three groups: reading with the teacher; reading the e-book independently, and reading the trade book independently. In addition, it is a mixed methods study that focuses on comprehension, vocabulary development and motivation to read. Other studies on e-books and young children typically include narrative text and have not included struggling children eligible for Title I programs. The central purpose of some e-book research has been comprehension (Doty et al. 2001; Grant 2004), vocabulary (Bus et al. 2009; Karemaker et al. 2008), or motivation (Ciampa 2012b), but studies typically have not incorporated all three dimensions. This study fills a gap in the research using non-fiction e-books and trade books with young children while using multiple measures to evaluate them. In order to gauge motivation, researchers used the *Elementary Attitude Reading Survey* (McKenna and Kear 1990) and conducted individual interviews with the children to determine their views on reading e-books. In order to determine comprehension, children's individual retellings were recorded. Also, a pre-test and post-test design of children's vocabulary development was implemented.

Although the majority of children in the study had very positive views about e-books and preferred to read e-books

rather than regular trade books, some did not. Therefore, it is important for educators and families to offer children both e-books and trade books. It is also necessary to consider children's reading interests and levels and make a wide variety of titles available for digital natives to support their literacy development. Children's interest should be taken into account when choosing literature (Hoffman and Paciga 2014). Providing children with access to both e-books and trade books in a variety of genres would allow them to choose literature based on their interests. When children are interested in the text, they are more likely to be fully engaged in the reading. Children's most accurate retellings were from the group that worked directly with the teacher. Therefore, teachers who scaffold literacy instruction for young children while they are reading e-books, if preferred, could increase comprehension and motivation. Educators and families should work closely with the children to scaffold their reading, regardless of the type of book (i.e., e-book or trade book) and continue to support children's recreational reading as well as academic reading.

In conclusion, future research should include adults supporting young children while reading interactive e-books. E-books read on iPads would allow for greater interactivity and provide children with the opportunity to

Table 6 Direct quotes from children's interviews

Themes	Categories	Quotes
Responses to reading e-books	Positive Feelings	"I like it a lot. You can find different books you can't find in the library." "I think it's better because if you turn off the sound you can follow the yellow highlighted word instead of using your finger."
	Negative feelings	"I do not prefer it. I like holding the books in my hands. Kindles are okay, but computer screens are not."
Pros and cons of e-books	Multimedia features	"Reading on the computer so you don't have to flip the page." "I like that a narrator reads it and you follow along. It helps you to know hard words. I can read the <i>Pearl Harbor</i> by myself now." "E-books are fun and who doesn't like reading. They read to you and you don't need to pull out a book. Just go on the Internet." "It's harder to see it."
	Interests	"They already have books on there and you can type in the things you want to read about." "My favorite thing is to read with a friend." "Don't like them." "Some of the books have boring titles and don't sound interesting."
Preference for type of book read and rationale	Preference for reading e-book	"E-books because there's more books to choose from and I don't have much books at home." "E-book because it's on a computer and I like computers." "E-books. I'm not really a big fan of reading books, so e-books are more fun. I try to read a little every day."
	Preference for reading trade book	"Regular books because it's easier to see it." "Regular books at the library because they have more choices. There are fascinating books, some real, some fake." "Regular (books) because I like to read instead of listening to them."

hold the e-book while reading instead of reading on a desktop computer. Since this study was only over a 19-day Title I summer reading program, longitudinal research addressing children's literacy integrating e-books is advised. Finally, using both fiction and non-fiction e-books with children, based on the children's interests, is suggested by the researchers.

Conclusion

Children openly expressed their desires to read e-books and provided pertinent comments regarding their views about the pros and cons of e-books. Overall, they had very positive opinions about reading e-books. However, the group of children who read trade books with teachers made the greatest gains in this study. Thus, the findings suggest that the teacher's support of comprehension plays a more important role than the technology. However, as per the results of this study, the use of e-books can be a motivational tool for children who struggle with reading. Therefore, teacher scaffolding during instruction while incorporating a variety of texts, both traditional trade books and interactive e-books, would allow for children's various interests to be met and literacy skills to be enhanced.

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