Practical Strategies for e-Book Use in Early Childhood Classrooms (K-5)

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Abstract This chapter examines current e-book research and practices and offers strategies for e-books use in early childhood settings (K-5). Results of a survey and in-depth interview data are provided and analyzed to offer a picture of why and how e-books are used in classrooms. Specifically, the chapter outlines which e-book features support early literacy development and assessment in classrooms. Benefits of e-books for both students and teachers are outlined. Finally, evidence provided by e-books users is examined. Findings indicate that patterns in how teachers are using e-books in the classroom are emerging in the research, however, some areas require further investigation.

Keywords e-Books · Reading · K-5 education · Classroom application · Scaffolding · Teacher benefits · Student benefits

Teachers often search for ways to keep their students engaged and excited about reading in order to build essential literacy skills. Universal Design for Learning (UDL) is a framework that offers guiding principles for educators about effective ways to enhance learning in classrooms. UDL promotes multiple means of representation (What is learned?), expression (How can knowledge be expressed?), and engagement (Why is it important to the student?) (Center for UDL 2018). Many electronic books (e-books) are designed with this framework in mind. For example, e-books may incorporate highlighting of the text and animations as multiple means of representation. They record oral readings and offer comprehension and vocabulary quizzes to provide multiple means of expression. Finally, e-books offer multiple means of engagement by offering reading incentives and reinforcers. These UDL principles also align with current research in reading including the use of reciprocal teaching, digital text comprehension, and engagement (Dalton and Proctor 2007).

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There are assertions that teachers can capitalize on children's motivation by teaching language and literacy skills, using electronic media (Brueck et al. this volume; de Jong and Bus 2002, 2003; Fisch et al. 2002; Jones and Brown 2011; Moody et al. 2010; Talley et al. 1997; Tønnessen and Hoel this volume; Verhallen et al. 2006). Current research contends that the use of electronic books will grow because e-book libraries are cost effective (Girmscheid and Genco 2015; Light Sail Education 2016). While there is growth of e-book use in schools, it is not happening at the expected rate. Teachers may not understand the benefits and challenges of including e-books in their classrooms to assist with instruction and assessment.

In this chapter we describe results of a recent study and integrate evidence from the literature that reveals the benefits of using e-books for students and teachers for supporting literacy development. Also discussed are the ways in which teachers use e-books and the challenges students and teachers may face. Finally, we review relevant information about how to select e-books that meet both teacher and student needs in the classroom and discuss the importance of research that bridges the gap between research and practice to address effective methods for using e-books in the classroom.

1   e-Book Use

In the Fall 2017, an electronic survey was conducted using a convenience sample of K-5 teachers ($N = 46$) in the United States to find out the extent to which teachers use e-books and what their use looks like in the classroom setting. The teachers who completed the online survey were enrolled in graduate programs at a local university or attended a local reading association meeting. Approximately 45% ($n = 21$) of the teachers had taught 12 years or more; 14% ($n = 6$) had taught 8–12 years, 22% ($n = 10$) taught 4–8 years, and 19% ($n = 9$) were beginning teachers (i.e., 1–3 years of experience). About 64% ($n = 30$) of the teachers taught grades K-3. The other teachers ($n = 16$) taught in grades 4–5. Seventy percent ($n = 32$) of the teachers who completed the survey reported that they used e-books. The findings are discussed throughout the chapter.

In addition to the survey, two in-depth interviews were conducted to gain details about effective tools and useful features of e-books. One of the teachers interviewed was a third grade teacher and the second was a kindergarten teacher. Specific themes emerged and those findings are integrated into the supporting research discussed in this chapter.

2   Picture of e-Book Research in Classrooms

Educators are working to integrate the use of technology into the classroom in an effort to better meet the individual needs of their students. e-Books offer scaffolding features that can be customized (Pisha and Coyne 2001). These include embedded

supports that can foster comprehension (Dalton et al. 2002; Herman and Ciampa this volume), print referencing (Moody 2010), vocabulary (Proctor et al. 2009), and progress monitoring (Hall and Murray 2009). This differentiation can benefit individuals who struggle with reading engagement and achievement.

Our survey data suggested that teachers used e-books in a variety of ways. The contexts in which teachers reported using e-books were for independent reading (78%), a learning center activity (68%), and for small group reading instruction (43%). One third of teachers reported using e-books for whole class instruction. When analyzing data from the survey and interviews and combining them with current evidence on e-books, some key themes emerged. These themes can be organized into two categories: student benefits and teacher benefits.

2.1 Student Benefits

Teachers reported a number of benefits when using e-books with diverse students in the classroom (see Table 1). These included increased reading engagement and scaffolding features. These tools can serve to promote repeated practice and greater exposure to books and reduce the cognitive demands of reading (see McKenna et al. 2003; McKenna and Zucker 2008; Zucker et al. 2009b). In the following sections, we discuss the ways e-books can benefit students' reading.

Reading Engagement Current research indicates that electronic media can motivate children to engage in literacy activities. Sometimes the features of e-books (e.g., dynamic visuals, auditory and visual supports, multiple means of representation) increase students' reading engagement (de Jong and Bus 2002, 2003; Fisch et al. 2002; Jones and Brown 2011; Moody et al. 2010; Talley et al. 1997; Verhallen et al. 2006). Huang and Liang (2015) indicated that many children who choose e-books possess the ability to use digital devices and prefer to read with them (Liang and Huang 2014). This literature corresponded with the view of the survey participants. Approximately 83% of teachers used e-books because they were engaging to their students.

The interview data offered additional perspectives about which features were most engaging for students. One teacher explained that many of the students he taught in rural North Carolina did not have access to electronic media at home, so

Table 1 e-Book benefits for students

Encourages engagement/motivation to read	Supports independent reading
Scaffolds comprehension	Promotes vocabulary development
Supports decoding and word recognition	Supports multiple means of representation
Offers access to leveled books	Provides access to varying genres
Supports reading at home	Helps alleviate roadblocks students may face
Fosters self-assessment	

The Red House

Upon a hill sat a little read house. It was small yet <mark>distinct.</mark>
bright white. The owners were a quiet couple who loved wo
couple lived there for forty years and worked daily to ensur

distinct
recognizably different in nature from
something else of a similar type.
physically separate.

Fig. 1 Dictionary and highlighting functions

reading e-books at school was engaging for them. He also observed that many students were motivated by e-books' reinforcers (e.g., earning parts to build robots and rockets), which they received if they successfully completed the comprehension activities. In addition, when students had access to variety of e-books they were more likely to find books that interested them. Much research (e.g., Gambrell 1996; Ivey and Broaddus 2011) has shown that students read more when they choose books to read, rather than when teachers assign texts.

Different features offered in e-books can contribute to student engagement. For example, Moody (2010) found that hot spots can contribute to student engagement. Animations and extension activities are other examples of features that can get children excited about reading and promote independent reading.

Scaffolds That Support Independent Reading Literacy experts agree that e-books provide various scaffolds that support students' independent reading. These supports assist with a myriad of challenges that students face when trying to read (Herman and Ciampa 2017; Moody 2010). Interestingly, the respondents in our study also found e-books serve this purpose. More than 70% ($n = 33$) of teachers noted that scaffolding supports provided needed assistance to promote independent reading. About half of the teachers ($n = 23$) reported that dictionary and highlighting functions, for example, allowed their students to read independently (see Fig. 1). These features can also support students when reading at home.

The versatility of e-books also made them useful for teaching small and large groups of students. For example, interview data indicated that some teachers project e-books onto Smartboards, in place of using big books, because the text can be enlarged and words tracked using a pointer. Because all students can clearly see the print in e-books, they can be used for shared reading and print referencing. e-Books also provide students with opportunities to explore concepts about print, identify sight words, practice other beginning reading skills, and provide access to similar information on different reading levels. Discussed below are the kinds of support teachers reported e-books can provide for students: narration, decoding, vocabulary, and comprehension.

Narration Supports Narration supports are found to increase children's motivation to read (Liang and Huang 2014). Auditory supports, such as read aloud features and voice-overs paired with print text, provide children with the opportunity to follow along with the words on the page (Moody 2010), which can increase print understanding (Zucker et al. 2009a). The teachers we interviewed reported that

narration can be a helpful tool for struggling readers who are learning fundamental reading skills. Narration can also support the development of print concepts so students may explore texts more independently.

Decoding Supports Word pronunciation features can assist readers who are unable to decode text by providing modeling and pronunciation. Researchers investigated the use of text-to-speech features on young children's word recognition and found positive effects (Karemaker et al. 2010; Olson and Wise 1992). One of the teachers we interviewed revealed that he appreciated the immediate feedback his students received from the e-books. For example, if a child did not know how to pronounce a word, she could highlight it and listen to the pronunciation. Teacher interview data also revealed that word pronunciation features assisted emergent readers with decoding and could be especially helpful for English Language Learners (ELLs).

Vocabulary Supports Hot spots can also support language and vocabulary development (Smeets and Bus 2012, 2015; Verhallen et al. 2006). In some cases, students may recognize a word and its meaning when the word is read aloud to them, but they may not recognize the word when they are reading silently. As noted above, hot spots can provide the pronunciation of words, which may also support the development of a child's reading vocabulary. This feature can also be helpful for ELLs (Verhallen and Bus 2010) and beginning readers looking for word meaning (Verhallen et al. 2006). According to Kame'enui and Baumann (2012), vocabulary instruction can improve students' listening, speaking, reading, and writing vocabularies.

Comprehension Supports Not only does research indicate that e-books enhance students' vocabulary knowledge but e-books can also boost student comprehension (Doty et al. 2001; Greenlee-Moore and Smith 1996; Korat and Shamir 2004; Matthew 1996; McKenna et al. 1997; Roskos and Burnstein 2012; Shamir and Shlafer 2011; Segers and Verhoeven 2003). Findings suggest that hot spots used effectively can support students' comprehension of story content (e.g., the text says "the rabbit runs" and animation shows the rabbit running) (Korat et al. 2014; Underwood and Underwood 1998). One teacher we interviewed noted that the particular e-book system he used provided support for students in regard to comprehension. For example, if a student took a comprehension quiz, she received feedback when an answer was correct or incorrect. If an answer was incorrect, the e-book prompted her to revisit the text and answer the question again. This feature can support students as they learn to find evidence in a text, which is a valuable skill emphasized by CCSS and other state standards.

It is important to recognize that some of the scaffolds described above may not fully alleviate all the roadblocks students face, however, they can provide support students need as they practice reading independently. This finding leads to some of the teacher benefits reported by e-book users.

2.2   Teacher Benefits

Hutchison and Reinking (2011) conducted a survey of teachers' beliefs and practices related to the use of information communication technologies (ICT), of which e-books are a part. Although their findings were not specific to the use of e-books, they suggested that teachers were not integrating ICTs into reading and writing instruction. In contrast, global e-books sales, indicated that e-book use is on the rise (Rüdiger et al. 2016) and Lam et al. (2010) speculated that as e-books become more available, their use will increase. In our 2017 survey and interview findings, a large majority of teachers revealed they used e-books on iPads and computers. These data may suggest an emerging trend in e-book use as the prevalence of digital devices increases in schools.

In our research, teachers reported a number of ways e-books benefit them and foster their use of e-books. To learn more specifically about why teachers use e-books, we also referred to interview data. Benefits included the following: access to books, student independence, assessment tools, and streamlines literacy instructional time (see Table 2).

Access to Books   When examining global e-books sales, data indicated that e-book use was on the rise and prices were decreasing (Rüdiger et al. 2016). Teachers often search for economical options to increase book access at school. Interview data indicated that some e-book subscription systems provide access to several copies of a single title, which decreased costs compared to purchasing several hard copies of books. These data are in agreement with findings that teachers are using e-books to provide students with access to various online resources (Lam et al. 2010).

Benefits reported by teachers focused on how e-books and e-book systems (e.g., Learning A–Z) facilitated classroom literacy instruction. When teachers have access to well-designed e-books, written at varying levels, they can better differentiate instruction. This increased access facilitated small group instruction, which 43% ($n = 20$) of survey respondents reported as a reason why they used e-books. Access to multiple copies of the same book can also expedite small group book clubs, which provide a different context for small group instruction, particularly for those students who can read more texts independently.

Table 2   Benefits of e-books reported by teachers

Economical alternative	Provides a variety of assessment tools
Provides access to appropriate reading materials that support differentiated instruction	Supplements face-to-face assessment administration (records, analyzes, organizes results)
Monitors individual progress in various aspects of reading	Offers flexible scaffolding to facilitate independent reading
Promotes independent reading	Encourages collaboration between the students
Streamlines management of literacy instruction	Supports independent student research

Fig. 2 Child reading an e-book of her choice at home from the Raz Kids collection. (Permission granted by Heidi Higgins)

Access to e-books that represent high interest topics, different genres, and culturally relevant texts provide teachers with a variety of titles to better match student interests and reading levels. Furthermore, when students have more access to a variety of books, they are more apt to read on their own, which is an important activity for literacy development. Some online systems provide student access to e-books wherever students have access to a digital device (see Fig. 2).

Fosters Student Independence Typically literacy instructional time involves not only teacher-led small group reading instruction but also incorporates independent tasks and/or student-facilitated instructional activities. For example, learning stations, that include such activities as independent writing, oral reading, independent reading, word work, and research, offer uninterrupted time for the teacher to work with small groups of students and/or to conference with individuals.

Teachers in our study reported that they provided varying amounts of time for students to read e-books independently. Of the teachers who completed our survey, approximately 43% ($n = 20$) set aside about 15 min each day for students to read e-books. In contrast, 68% ($n = 31$) of teachers reported they set aside more than 15 min each day to read traditional books in the classroom. One teacher reported he set aside approximately 20–25 min, 4 days a week, during the reading instructional block, for students to read e-books independently.

e-Books also provided teachers with more uninterrupted instructional time because many of the books provide flexible scaffolding for students as they read (see Sect. 2.1 and Table 1). For example, if students run across an unknown word, they can request pronunciation of the word or a definition to clarify meaning. Features such as these facilitate student independence.

Assessment Tools In order to plan appropriate, differentiated instruction for all students, teachers need up-to-date assessment data. Some e-book systems provide a variety of assessment tools that can help teachers better plan instruction.

Recent survey research on e-book use by teachers indicated that teachers benefit from using assessment features of e-books because data is stored in one place and offers immediate feedback. The teachers we interviewed noted the benefits of

having several available assessment options and the convenience of easily accessible results. For example, a read aloud recording feature can provide teachers a tool to check-in on a student's oral reading more often than she may be able to do in a face-to-face context. The teacher can simply assign students the option to independently record their oral reading. Then, at a later time, the teacher can listen to the recordings and make additional notes, if needed. In addition to the read aloud recording feature, some systems also analyze a students' oral reading and organizes data for the kinds of cues (i.e., visual, semantic, or syntactic) students used, word count, speed (WPM), error rate, self-correction rate, and text accuracy. These data provide teachers a summary of skills at a glance, which can facilitate appropriate reading instruction.

Some systems provide a variety of reading comprehension assessments and an analysis of comprehension skills that students use when reading orally or silently. They not only keep track of comprehension test scores but also alert the teacher if there is a pattern of the kinds of questions with which a student struggles, valuable information when planning differentiated instruction for each student.

Other assessment tools that can assist teachers with tailoring instruction for specific students include systems that keep track of words for which students requested electronic assistance (e.g., pronunciation, definition). Some systems also keep track of the books students read. This data can provide evidence that a student may need to read books outside a particular series or genre, for example.

Although many e-book systems provide important assessment data, researchers do not recommend that these tools be used exclusively or replace face-to-face assessments teachers conduct. However, the assessment tools and analyses can provide a way for teachers to check-in more frequently with students they are most concerned about. Thus, some kinds of e-book assessment tools can help teachers more efficiently collect data needed to develop appropriate, differentiated instruction.

Streamline Instruction Managing differentiated literacy instruction for 20–25 students is much like directing an orchestra. Musicians play different instruments, and they each have a distinct part to play. Individuals must practice independently but they must also practice in collaboration with their peers. When everyone plays their parts and the orchestra is directed efficiently and effectively, the orchestra produces a harmonious melody to which everyone has contributed.

Literacy instruction must be well-orchestrated, and teachers need ways to meet the instructional needs of each student. The use of e-books can streamline the management of literacy instruction. Because students in a single class will possess varying literacy skills, strategies, and interests, access to a variety of books and other instructional materials written appropriately for all readers is imperative. To plan for instruction and determine which texts to use for instruction, teachers must know each child's strengths, areas for improvement, and interests. Assessment data provided by each child, analyzed by the teacher, and then used to inform instruction is imperative. Effectively orchestrating literacy instruction is only possible when students can engage in literacy activities independently and alongside their peers.

e-Books, which provide scaffolding for students during reading, are essential so teachers can work with small groups or with individuals. e-Books may also allow readers to monitor their reading fluency, accuracy, and comprehension.

Examples of literacy instructional activities that must be orchestrated in an elementary school classroom are described below. One group of students may be working with the teacher and reading a common e-book. Although the teacher will have collected initial assessment data to form groups and plan instruction, she can also assess students' skills, on the spot, and provide needed instruction immediately. At the same time, with no direct teacher supervision students in another group may be working at a Listening Station, where they are engaged with an audio e-book, and still others may be reading different e-books on individual digital devices. During literacy-focused instructional time, typically students practice reading books considered to be on their reading level. However, allowing students to read books of their choice is also a worthwhile and engaging practice for promoting literacy development.

Other learning stations in which students may be engaged during literacy instruction time may include a Writing Station where students are provided with materials and opportunities to write and conference with peers and/or the teacher, an Interactive Station where students may play reading games, and a Research Station where students use iPads, books, and other materials to research topics that particularly interest them.

Teachers in our study reported they use websites, such as EPIC! Books for Kids and Ducksters, to support individual and small group research because they provide digital materials, in a wide variety of formats and topics about which students may be interested (see Fig. 3). For example, if a child wanted to learn about sharks, some websites suggest additional books about sharks that students could explore. Because the materials are accessible online, several students can collaborate by reading the

Fig. 3 Student peruses EPIC! for kids to select a book to read independently. (Permission granted by Chase Morgan)

same or different texts. The quality of electronic materials (e.g., books and videos) vary, but some e-book websites include high quality electronic materials, such as those published by the Smithsonian Institute.

Websites, such as EPIC! Books for Kids and Ducksters for Educators, offer free online libraries with an assortment of electronic texts, including graphic novels, books about pop culture icons, and audio chapter books. Although the books are not leveled in the same way as guided reading books, the website provides teachers and students with information about books' appropriate age ranges and lexiles.

3   Challenges for Students and Teachers

Although e-books benefit both students and teachers, they also create challenges. For one, children may lack expertise to use the features of e-books and other digital devices. This lack of knowledge can hinder students' ability to complete tasks effectively and efficiently (McAnulty et al. 2012) and reduces the potential benefits of e-books. Schugar et al. (2013) recommended that students should learn the basic operations of e-books (i.e., turning on the device, understanding and using features, and rules for use) to better support effective e-book use and to support independent reading.

Teachers may find e-book use challenging because of their own lack of knowledge about how to effectively use e-books, the cost of e-books, and how to obtain the technology necessary to support e-book use. Our survey found that 32% ($n = 15$) of teachers reported they did not use e-books because of a lack of necessary technology in their classrooms, lack of access to e-books, and lack of training about e-book use. Of those teachers who do not use e-books, 50% ($n = 23$) reported that the biggest challenge was the lack of technology. They also noted that the cost of e-books was a factor that contributed to their lack of use. Familiarizing teachers with outlets that make e-book purchases reasonable would benefit teachers. In addition to cost, some e-books are not available for sale but are licensed (Shannon and Leverkus 2014). Since some vendors' licensing regulations may limit access to one patron per book, multiple copies of popular books may not be available (Shannon and Leverkus 2014). This restriction may limit how e-books can be used in the classroom. Therefore, it is important that teachers make sure the e-book library subscriptions they purchase provide adequate access for students.

Approximately 28% ($n = 13$) of teachers in our survey reported they did not use e-books because of lack of teacher control or monitoring of students' in-progress reading. This finding seems to contradict what some teachers reported as a benefit of e-books. One reason for this may be because all e-books do not provide the same kinds of monitoring functions. It is also possible, as noted by some teachers in our research, that some teachers lack the experience and/or knowledge about how to use effectively the available monitoring features of individual e-books and e-book systems. For example, only one teacher in our study mentioned the use of the read aloud recording feature.

4 What Teachers Should Consider When Selecting e-Books

Digital books offer engagement opportunities, scaffolding supports, and extension features that can support meaningful reading activities. However, teachers need to give careful consideration to determine which e-books best support differentiated instructional goals for each student. Schugar et al. (2013) suggested that teachers judge whether e-books features are strategically placed, how and if the features support the text, and how effectively they extend book interactions. e-Books that allow for flexible use of features will probably be the most useful. Roskos et al. (2009) recommended that teachers need to consider a book's construction and ensure it can promote literacy development by providing vocabulary supports, decoding scaffolds, and plot comprehension supports. For example, English Language Learners (ELLs) might benefit from vocabulary supports, while another child, who lacks adequate decoding skills, may benefit from animations that support the storyline. Selecting e-books that provide the particular kinds of support individual students need is no different than carefully choosing appropriate traditional print texts. Thus, how teachers intend to differentiate instruction for particular students should influence e-book choice.

Similarly, teacher needs can influence e-book choices. If teachers need to assess a students' oral reading, they might utilize an assessment tool that records and analyzes oral reading. If a teacher is interested in progress monitoring a child's comprehension, another tool with built-in quizzes and an analysis of the results might be more appropriate.

e-Book architects also recommend that it is important to select e-books that purposefully embed auditory and visual features, which positively impact the overall message of the e-book (http://E-bookarchitects.com/learn-about-E-books/enhanced-E-books/). When selecting books with auditory features, such as voice reading of the text, it is important that the audio match the written word. Auditory features also increase accessibility for users who are unable to read the text independently or users with visual impairments. Furthermore, they can be paired with other accessibility programs (e.g., enlarging text).

Teachers also need to be aware that some features of e-books can actually divert readers rather than support them (Labbo and Kuhn 2000; Takas et al. 2015; Trushell et al. 2003). For example, hot spots and games that are not intricately related to a story may interfere with reading (see Takas et al. 2015).

5 What Populations Are Best Served by e-Books?

One item on our survey asked teachers what populations benefited the most from e-book use. Generally, they believed that all students benefit. Specifically, 80% ($n = 37$) of the teachers believed that e-books benefit typically developing students and those with learning differences, 60% ($n = 28$) believed highly advanced readers

Table 3 Ways e-books can be used with various student populations

Authors	Population	Features used	Reason
Coyne et al. (2012)	Intellectual disabilities	Scaffolding supports	To build word comprehension and phonological awareness
Schugar et al. (2013)	Typically developing students	Bookmarking, annotating, and highlighting	To summarize and retell stories, to monitor comprehension
Segers et al. (2006)	Autism spectrum disorders	Scaffolding supports	To build vocabulary
Shamir et al. (2010)	At-risk (i.e., low SES, immigrant status)	Animations and pictures	To build vocabulary and phonological awareness

benefit from the use of e-books, and 70% ($n = 32$) believed that e-books are beneficial for ELLs. One interviewee reiterated these findings by explaining that e-books benefit a diverse population of students. For example, some e-book systems provide leveled books for students who are still developing their reading skills. Access to these books is important so students can experience success, which builds reading confidence. Other systems provide a wide variety of high-interest fiction and nonfiction books, which provide students with different interests, access to texts that are engaging to them. Although all e-books are not categorized by specific reading levels, appropriate age ranges and lexiles often accompany the texts. It is important to note that children should not be restricted to only reading books on a particular level but should also be encouraged to explore books that interest them. Oftentimes, students can read more complex texts when they are passionate about a topic and have a well-developed schema for that topic.

A growing body of literature identifies how e-books benefit different populations of learners (e.g., typically developing students, those at-risk, and those diagnosed with disabilities), particularly in relation to scaffolding features often included in e-books (see Table 3).

Schugar et al. (2013) investigated e-book reading behaviors in typically developing students; results indicated they used bookmarking, annotating, and highlighting to assist them with tasks such as summarizing. Researchers often found that children at-risk for reading failure due to low socioeconomic or immigrant status also improved their literacy skills, despite language delays, through the use of e-books (Korat and Shamir 2007; Littleton et al. 2006; Moody et al. 2010; Shamir 2009; Verhallen et al. 2006). Shamir et al. (2010) used a randomized design to measure vocabulary, phonological awareness, and print knowledge in children ages 5–7 years old and at-risk for learning disabilities. Results indicated that children in the e-book condition performed significantly higher on vocabulary and phonological awareness measures than in the adult read aloud condition. Similar positive outcomes were highlighted by Korat et al. (2013) who found increases in word comprehension and phonological awareness in comparable populations when e-books were compared to traditional print text.

Research about the effectiveness of using e-books with students diagnosed with disabilities is more limited. Coyne et al. (2012) examined the effects of e-book scaffolds on 16 students with intellectual disabilities. Results showed significantly

greater gains in passage comprehension when an e-book was paired with letter and word recognition software and training on evidence-based literacy practices. A possible explanation for e-book effectiveness with these populations may be due to scaffolding features which meet the needs of students from diverse backgrounds (Pisha and Coyne 2001; Wehmeyer et al. 2004). When thoughtfully selected, e-books can provide the kinds of scaffolds individuals need.

Children diagnosed with Autism Spectrum Disorders (ASD) may also benefit from e-books since technology is highly engaging for many of them. Researchers (Williams et al. 2002) compared the effects of e-books and print books on engagement and word recognition; results indicated that e-books were significantly more motivating than print books and increased in-context word recognition. Thus, e-books may offer benefits for students with autism who are sometimes reluctant readers.

Segers et al. (2006) investigated the use of e-books for students with physical disabilities and results yielded positive results for teaching vocabulary. Observations indicated that children with learning disabilities may require alternative pedagogies in order to compensate for their information storage and retrieval issues (Swanson et al. 2013). As the use of e-books increases in schools, more evidence needs to be collected to determine how e-books and particular scaffolding features can benefit students with disabilities.

6   Conclusion

In this chapter, available evidences describe some unique and helpful e-book features that can benefit both teachers and students. Students benefit from e-books because they are engaging, thus providing more exposure to print. Scaffolding features like animations, hot spots, word pronunciation, embedded dictionaries, and read louds promote independence and support the development of literacy skills.

e-Books are beneficial resources for teachers too. They can be integrated easily into literacy stations or books clubs, in which students work independently, and allows time for teachers to offer direct instruction for small groups and individuals. Teachers also reported that assessment, data analysis, and reporting features provided by e-book systems, were beneficial to facilitate effective literacy instruction.

The findings of our 2017 study cannot be generalized because the survey reflected a relatively small number of teachers ($N = 46$) and the number of interviews were limited. However, many of our findings align with extant research, which indicate that e-books can benefit all readers. However, minimal research is available to reveal exactly how useful e-books are for students with disabilities.

It is evident that teachers are beginning to use e-book tools in meaningful ways that promote literacy development. More research is needed about e-book use in K-5 classrooms. By examining teachers' creative applications of these resources, researchers can learn more about where research efforts should be focused. Also worth investigating is how using e-book systems actually affects teachers' use of instructional time.

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