

Introduction to the Edited Volume



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Born into a digital world, today's children spend more and more time with new media starting at an ever-younger age. While data show that games, YouTube videos, and television shows are children's favorites and digital books are generally underutilized (Merga and Mat Roni 2017), the number of studies targeting digital books is growing. Books are seen as the bedrock of reading comprehension and language development and as such digital books attract researchers' attention. The narration—a main source of information in (digital) books—includes sophisticated words and complex grammar, both of which are rare in films and television shows (e.g., Montag et al. 2015). This may explain why books are much more stimulating for language and literacy than alternatives such as YouTube videos and television shows.

An abundance of evidence shows that time spent with television and film is much less productive than book reading; television and film may even have a negative effect on language and literacy development of very young children. For instance, a recent study by Ma et al. (2017) demonstrates that the more handheld screen time a child's parent reports, the more likely the child is to have delays in expressive speech

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at 18 months of age. The time children share books with an adult is, by contrast, a strong predictor for both language comprehension and production skills (e.g., Bus et al. 1995; Mol and Bus 2011). Given the positive influence of adult-child book reading, how digital books impact the young child's early reading experiences is of major concern among researchers, educators, and parents.

1 The Prevalence of e-Books

Research shows that ever-increasing numbers of children use digital devices with storybook apps as part of their daily routine (Rideout 2013). Yet, despite children's increasing use of book apps from an early age, there is a limited understanding of how these "new age" books influence children's literacy development. e-Books go beyond paper books to offer new and expanded opportunities for practicing early literacy skills. And, compared to paper books, e-books with particular additions may be more compelling not only for engaging children in storybook reading (Richter and Courage 2017), but also for developing cognitive skills foundational in early literacy learning, such as vocabulary (Korat 2010; Smeets and Bus 2012; Verhallen and Bus 2010).

2 The Conflicting Evidence

As access to e-books widens, it is important to examine the educational benefits and limitations of these types of books. To date studies on the topic have presented inconsistent findings regarding the potential benefits and limitations of e-books in helping children learn literacy skills at home and in school (Bus et al. 2015; Roskos et al. 2017). In particular, researchers have examined the software features of e-books and their possible influences on both independent and adult-child shared reading. For example, children's independent reading of motion-enhanced e-books is particularly beneficial for children who are at risk of attention-related problems (Takacs and Bus 2016). However, low quality e-books, such as those containing animations and sound effects irrelevant to the story, do not provide children many learning opportunities (Reich et al. 2016). In addition, findings from studies that have compared paper and digital books in adult-child shared reading are also mixed in relation to levels of child story comprehension (Krcmar and Cingel 2014; Lauricella et al. 2017) and amount and styles of adult-child speech (e.g., Parish-Morris et al. 2013).

3 How This Book Captures These Issues

At present, researchers, educators, and caregivers are faced with a pressing question: How can e-books in early literacy experience shape healthy literacy development and promote better learning? We are beginning to understand what constitutes a quality e-book in children's literature (Yokota and Teale 2014; Yokota 2015) and as a learning resource (Bus et al. 2015; Reints 2015). We are also discovering how e-books support narrative comprehension skills and vocabulary that are the foundation of future reading comprehension (Kendeou et al. 2009; Potocki et al. 2013). But we need to know much more.

This book seeks to answer this question by summarizing what we know about current e-book design and usage practices, thus providing a “working” knowledge base. Its primary aim is to describe new mechanisms that digital books afford and to what extent these mechanisms support literacy development and learning for all children or specific groups.

4 Book Overview

The book contains 13 chapters on a range of topics related to e-books and young children's language and literacy development and learning. The chapters review the qualities of digital books as children's literature; describe adult-child interactions in shared digital book reading; explore children's independent digital book reading; and examine the use of digital books with children at risk for literacy problems. They also point the way ahead for future research that can expand what we know about the role of e-books in children's literacy experience and inform their use in early literacy teaching to achieve the best results. The book is divided into four broad parts: (1) e-book features and literacy development, (2) e-books and literacy practices at home, (3) e-book and literacy practices in schools, and (4) e-books and special populations.

4.1 *e-Book Features and Literacy Development*

The four chapters in this part examine how various e-book features and platforms affect young children's literacy development. First, Hassinger-Das, Dore, and Zosh examine four pillars from the science of learning regarding how people learn best—active, engaged, meaningful, and socially interactive—in relation to the design and effectiveness of e-books for shared book-reading. This review chapter explores how we can use the science of learning to harness the potential—and mitigate the drawbacks—of e-books for adult-child book reading.

In the following chapter, Courage reviews the current literature about (1) the potential of e-books interactive features to distract children from story information and possibly diminish learning, and (2) the change in the adult-child interaction that occurs during e-book reading compared to traditional paper book reading. Courage situates her review around three experimental studies with 2- to 5-year-olds from her own research group.

Next, Bus, Sari, and Takacs's review focuses specifically on the multimedia and interactive elements of e-books and how they impact children's story comprehension. They review evidence about effective and ineffective multimedia enhancements, while also discussing how e-book designers can employ such effective enhancements in meaningful ways to boost children's story comprehension.

Relatedly, in the following chapter, Evans reports about a study examining differences in young children's behaviors during independent reading of different e-book formats. She discusses which types of book features, including multimedia enhancements and voice-overs, are most effective in helping children learn from alphabet books. The chapters in this part review the literature as well as report new empirical findings to provide a roadmap for understanding how science can help us understand the benefits and drawbacks of e-book formats and features for literacy development.

4.2 e-Books and Literacy Practices at Home

Two chapters comprise this part, providing insights regarding parents' perceptions of both e-books and their children's literacy practices with e-books at home. The authors also highlight the positive influences well-designed e-books can have on dialogic reading at home. Etta's chapter presents parents' reports on reading behavior and perception on children's print and e-books. The findings show different ways of using print and e-books and various purposes for both the print and e-book uses. In particular, although the primary purpose of print and e-book use is children's learning at home, another common purpose of print books is related to social-related aspects (e.g., bedtime routine), while e-books are commonly used for babysitting-related aspects (e.g., entertaining children).

In their review of five studies, Revelle, Strouse, Troseth, Rvachew, and Forrester investigate adult-child shared reading of specially designed e-books for dialogic reading and print referencing behaviors. Their review demonstrates that an agent's modeling of dialogic reading on an e-book positively influences adult-child's dialogic reading of e-books regardless of the provision of adults' training sessions. Also, e-books containing animated target words encourage print referencing during shared reading. The chapters in this part report and review the authors' own studies that show what literacy practices occur at home and how well-designed e-books can enhance home literacy practices, such as making shared reading more productive.

4.3 e-Books and Literacy Practices in Schools

The chapters in this part discuss broad topics related to e-books in schools: the examination of different types of e-books for independent reading; comparisons of shared reading of print and e-books; potentials of informational e-books in students' reading comprehension; and pedagogical uses of e-books shared reading practices and early literacy teaching.

Brueck, Lenhart, and Roskos review popular digital reading platforms and their implementation in elementary school students' independent reading at school. They assert that new learning technologies in digital books personalize reading in new ways to address students' strengths and needs, as well incentivize their motivation to read.

At the preschool level, Wong and Neuman discuss their study on 36 preschoolers' literacy achievements—word learning and comprehension—in two different contexts: after a teacher read aloud of two print books and after independent reading of two e-books. Their results demonstrate that book contents, but not book formats, influence children's comprehension.

Relatedly, Hoel and Tønnessen point out three major aspects that teachers should consider for digital book shared reading in kindergarten classes, including texts, media and situations. In terms of texts, they assert that the relevance between meanings presented by words and images, and children's life experiences is important to increase children's interest in and engagement with the story. According to them, the success of multimedia features lies in the good integration with the narration of the story and the opportunities they offer for extra-textual discussion.

At the primary grade level, Herman and Ciampa examine 14 first grade students' independent reading of informational e-books by utilizing mixed methods. Results show a significant positive relationship between the students' comprehension scores and their use of literacy support tools (e.g., annotating). The examination of the students' reading behaviors also reveals that students are capable and prefer to use the support tools embedded in the e-books.

Finally, Moody and Swafford discuss their analysis of a survey and in-depth interviews with K-5 teachers. They report some of the benefits—such as increased engagement and motivation— and challenges—such as lack of tech skills— and provide practical guidance on how to use e-books for school literacy practices, such as how to select appropriate e-books. Chapters in this part provide a critical examination of e-book features that may influence children's learning with in-class e-book reading and discuss essential aspects that should be considered when e-books are selected for and are used in class reading practices, such as independent and shared reading for better literacy learning at school.

4.4 *e-Books and Special Populations*

The part two chapters provide invaluable insights into the positive effects of e-books on literacy learning for young children with learning challenges. First, Shamir, and Doshinsky review two empirical studies that examine vocabulary learning and reading comprehension in first grade children at risk for learning disabilities. One study focuses on children's story comprehension with two different types of educational e-books and the other examines children's vocabulary learning and story comprehension after an intervention program. The findings suggest some optimal ways to use e-books in the classroom for young children at risk.

The final chapter by Van Daal, Sandvik, and Adèr is a meta-analysis of 37 empirical studies carried out over 10 years examining the effects of interventions with e-books on literacy learning for young children aged between 0 and 8 (at risk and not at risk). Their review shows that children's age and time spent on the task seem to be the two variables that have the biggest influence on learning from e-book reading. The two chapters in this part highlight the positive influences e-books have on young children with learning challenges when learning to read and write.

5 Summary and Future Directions

As a whole, this book demonstrates the potential of e-books to enhance home and school literacy practices. In particular, the use of e-books is beneficial for young children's literacy learning when well-designed e-books are used in home and school contexts for both independent and shared reading practices. The benefits of the e-books are also present reading practices of children at risk. Other aspects discussed in the chapters are variables (e.g., age, disability status, etc.) that may influence the effects of e-books on young children's literacy learning, young children's engagement with e-books (e.g., behaviours and preferences) and positive ways of using e-books at home and school.

However, as indicated in the chapters, children's attention to story may be distracted by certain e-book designs (e.g., animated illustrations and hotspot activities that are not relevant to the story in the e-books). This will negatively impact children's reading comprehension and result in less dialogic parent-child interactions. Moreover, some authors indicate that despite the increasing use of e-books and evidence showing the benefits of e-books, e-books should not replace traditional print books, as both formats provide different learning opportunities. It should also be noted that, for children from minority socio-cultural groups, e-books reflecting their life experiences (e.g., values and practices) may be more meaningful.

Regarding future research directions, several authors in this book call for further studies involving larger samples with diverse groups of participants, including children at risk. Also, some authors suggest developing longitudinal studies that involve repeated reading of e-books that increase the participants' familiarity with

the stories and digital tools, and that examine the long term effects of e-books—including both story books and informational books—on young children’s language and literacy learning. Other areas that deserve a closer examination are the effects of each particular multimedia feature (e.g., mixing of sound effects and music) and more productive design of interactive features, as well as further investigation of the effects of different interventions for parents and children at risk.

In sum, this volume provides a wealth of fresh information on major topics in early childhood e-books and digital book reading, including chapters on qualities of e-books for young children and emerging e-books literacy practices at home and school, making it a timely and informative read.

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