

“Every single one is my favourite” (Theo, 4 years): Children’s Experiences and Perceptions of E-Book Reading

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Introduction

The circulation of e-books in public libraries throughout North America is increasing exponentially, reaching about 30% of total circulation of fiction by the end of 2011 and estimated to pass the 50% mark in the next few years (Tucker, 2013). Therefore, examining e-book use is integral to understanding the impact of digital technology on libraries. E-books are the fastest growing consumer book market segment in the USA, accounting for about 20% of total revenue according to the Association of American publishers (Hall, 2012). Some of this growth is attributed to an increase in e-reading materials for children many of which are available through mobile applications (apps) thanks to the proliferation of digital reading devices such as Apple's iPad and Amazon's Kindle Fire (Hall, 2012). A report from Pure Oxygen Lab in 2014 indicates there are approximately 70 billion apps available for download and more than 80% of the top selling paid apps are in the category targeted at children (Shuler, Levine & Ree, 2012). These apps frequently include recordings of the text read aloud by a narrator, illustration animations, music, video, sound effects, and interactive game components. Young children are found to especially respond well to these enhanced features (Korat, 2008). E-books for children may be on an upward trend, but the Scholastic 2015 report *Kids & Family Reading Report*, 5th ed., shows that while the percentage of children who have read an e-book has increased across all ages from 25% to 61% since 2010, most children (77%) who have read an e-book say most of the

books they read are in print and 65% of Children – up from 2012 (60%) – respond that they will always want to read books in print even when e-books are available (Scholastic, 2015, 65-68).

Recent changes and improvements in technology have allowed heavily illustrated e-books to be economically published and distributed, opening the field to children's literature. At the same time there is increasing concern about the amount of time children are spending with screen technologies. While anecdotal accounts and reports of adult (teacher, librarian, parent) perspectives are available, to date there is very little empirical research which captures children's e-book reading practices, experiences and perspectives. This information is needed if libraries are to develop and share e-book collections for children in appropriate ways, user-grounded ways.

In response to this shifting landscape, this study explored children's experiences of e-book reading to understand first if and why e-books for children are important for public libraries to collect and share and secondly how best to go about doing this taking into account the perspectives and needs of the child e-readers themselves.

Literature search

Studies on the reading habits of children show a recent increase in children reading e-books. A study conducted by Digital Book World and PlayScience, a New York based children's digital research firm, entitled *The ABCs of Kids and E-books: Understanding the E-book Reading Habits of Children Aged 2 – 13* (2012), found that 54% of parents said their kids read e-books with 85% reading an e-book at least once per week. Children e-read on tablets more than any other device, with 31% of all

children reading e-books on a tablet (Greenfield, 2012). This is indicative of the trend towards the types of interactivity or enhancements supported by the tablets. Puzzles, games, video, and audio are now features that boost the narrative of e-books and create a unique reading experience that is further from print than ever before. In response to this a vast body of literature exists which details the way e-books for children are reshaping literacy. As it has been documented that young children now enter the formal education system with a wide variety of experience reading in multi-modal texts (Carrington, 2005; Marsh et al., 2005), looking at these texts and the reading of them is more important than ever before. The term multi-modal is being used in a social semiotic sense, recognizing that "meaning and knowledge is built up through various modalities" (Vasquez, 2005, p.209) such as image, sound, symbol and so on. It is clear that modern definitions of reading include abilities to read texts on screens as well as on paper (Levy, 2009). The massive proliferation of home computers and tablets engenders a wide range of interesting and timely research topics with regard to young children's new literacy skills (Miller & Warschauer, 2013).

Many studies seek to determine the effectiveness of e-books both in the classroom (see, for example, Grimshaw et al., 2006; Korat, 2008; Maynard, 2005; and, Hutchinson et al., 2012) and in relation to other topics such as metacognitive regulation (Ackerman & Goldsmith, 2011), phonological awareness (Chera & Wood, 2003), multimedia support for early learning (Seegers & Verhoeven, 2002), and story recall and response (Maynard, 2005; McClanahan et al., 2012). However, there is a wide discrepancy in the results of these studies which examine e-reading with parents (Kim &

Anderson, 2008; Chiong, Ree, & Takeuchi, 2012), with peers (Korat & Shamir, 2012) and independently (Chera & Wood, 2003; Seegers & Verhoeven, 2002).

In addition to these studies which focus more narrowly on education and literacy there is also a literature that seeks to expand notions of literacy to include digital literacy and to investigate the technical prowess of children. These studies view the literate individual as “the flexible and sustainable master of a repertoire of practices with the texts of traditional and new communications technologies via spoken language, print and multimedia” (State of Queensland, 2000, p.6). There is evidence that technological literacy is progressing (Miller & Warschauer, 2013). While literature on the old digital divide deals with separation of those with access to technology from those without (Prensky, 2001), current literature focuses on a new divide that resides in differential ability to use new media (Warschauer & Matuchniak, 2010).

Most of the literature on children and e-books surrounds these inquiries into literacy. Little attention has been paid to if and why children enjoy the e-reading experience. Compounding these gaps in the literature is the fact that the majority of current research examines children's e-reading from an adult perspective with most surveys and interviews consulting parent participants and not children.

One of the ways that Library and Information Science (LIS) research has positioned itself in relation to children's e-books is to help classify and differentiate among the many emerging types of e-books. For example, Barker (1999) organizes e-books into ten basic types, three of which apply to children's e-books: picture books, audio books and multimedia books. Current types of e-books for children are not as complex as seen in previous categorizations. They are described as simply “basic” or

“enhanced” (Chiong et al., 2012; Koehser, 2013) with the designation of “interactive” (Itzkovitch, 2012) sometimes used to describe enhanced features. The terms are not universally agreed upon but what is clear is that there are e-books and then something that goes beyond to include “bells and whistles like games, videos and interactive characters from the story embedded within a page” (Joan Ganz Cooney Center, 2013, np).

A shift in focus to user interface design for e-books is evident in current scholarship. For example, Columbo et al. (2012) use Dillon's (1996) ideas about designing usable electronic text and Mcquillan and Conde's (1996) work on the conditions of flow in reading to shape their discussion of creating the optimal e-book user experience. Still, there is debate about not only how to incorporate the new enhanced features of e-books for children, but also whether they can or should still be considered books. For example, Lisa Guernsey (2011) is among those who argue that a certain percentage of non-textual elements make the product something other than a book and more like a movie or a game (p.30). For Madej (2003) it makes sense to examine and use the conventions of video games to reshape digital narrative in a positive way to make it more immersive and engaging, so that “[children] have before them, combined, all of the storytelling media of the past rolled into one. This makes for a rich experience. It is part oral tradition, part print tradition, part television tradition, all integrated to create a fascinating whole” (Madej, 2003, p.3). Contrastingly, articles such as Adams' “Enhanced e-books and precocious readers: Will they help kids stay kids longer?” (2012) or Quenqua's “Is E-book reading to your toddler story time, or simply screen time?” (2014) express anxieties about whether or not e-books are good for

children, especially in their guise as purchases from the Apple App Store or another commercial vendor, recur again and again in the literature (Bird, 2011). Concern is echoed in the literature on literacy and education as well as in literature about parent and child co-reading e-books (Kucirkova, 2013; Lauricella et al., 2014). In this debate aspects of children's enjoyment of the e-book are rarely taken into consideration, a trend apparent through both industry and scholarly research. While defining the parameters of interactivity in e-books is important to the development of e-books for children, children as e-book readers are largely left out of the conversation.

Other LIS literature focuses on how libraries can build e-book collections, the benefits of these collections and the obstacles, including multiple platforms, copyright restrictions and limited budgets, faced by libraries (de Freitas, 2012; Bacon, 2013). For example, Diamant-Cohen and Hetrick (2013) describe a new approach to electronic story time, one that employs repetition with variety to create an experience that helps children connect and engage with the story on a higher level. A fairly old and large literature looks at digital libraries such as the International Children's Library, documenting their creation and use (for example, Druin et al., 2003).

Most of the studies conducted on children's use of e-books as entertainment come from publishing industry research, including the studies mentioned before (Scholastic, 2015; Digital Book World, 2012) as well as the Quickreports conducted at the Joan Ganz Cooney Center at the Sesame Street Workshop such as *Comparing parent-child co-reading on print, basic and enhanced e-book platforms: A Cooney Center QuickReport* (Chiong et al., 2012). These studies were conducted using surveys and short interviews. All ask their questions almost exclusively of adults (parents).

When interviews were conducted with children, interviewers asked the children questions to assess their comprehension of the story. An example is Grimshaw et al.'s 2006 study *Electronic books: Children's reading and comprehension*. As provision of books to support reading for pleasure is an important goal of public libraries (see Ross, McKechnie & Rothbauer, 2006), from an LIS perspective the child's enjoyment of the story and the experience of the medium are also relevant topics for study, an aspect which is absent in this literature.

This study addressed this significant gap in the literature. It explored children's experiences of and perspectives on e-book reading by observing and talking directly with child e-book readers themselves.

Research questions

The study focused on the following research questions:

1. What do child e-book readers enjoy about reading e-books?
2. What do child e-book readers dislike about reading e-books?
3. What can we learn from observing children reading e-books?

Method

This project used interviews with and observations of children within the context of a research approach known as contextual inquiry.

Sampling

Twenty participants from two to twelve years were recruited. The lower age limit was chosen as both the American Academy of Pediatrics (2011) and the Canadian Pediatric Association (2011) recommend no screen time of any sort for children under the age of two years. A combination of convenience, snowball and purposive sampling was used. Posters were mounted and information sheets distributed throughout the university, local public libraries and other community agencies serving children and their families. We asked participating families to recommend others that might be interested. We also endeavoured to recruit participants who represented the full age range and both genders. Six boys and fourteen girls participated. While not representative of the population, this sample is suitable for an exploratory study. We collected basic sociodemographic data from each family, which allowed us to compare the data to the characteristics of the population evident in the 2011 Canadian Census. Our sample generally mapped on to the census data for the area. As this study sought to investigate children who are e-book readers, potential participants were screened to ensure they had experience reading e-books for three months or more. Informed consent was obtained from parents as well as assent from each child old enough to be able to provide it (5 years and older).

Data collection

Contextual inquiry (Beyer & Holtzblatt, 1998) arose from design studies in work places. It requires the researcher to go to the participant's workplace and see the work as it occurs, collecting data through observation and interaction with the participant. It allows for the exploration of what people are doing within the context of the task itself. It

can be seen as a partnership which allows participants and researchers to investigate activities and issues together. It is readily applicable to the task of e-book reading.

We met with the children in either their home, school, or on the university campus. In the case of children who were not yet reading independently (those two to about seven years old), we asked to observe shared child/parent readings of one or more e-books. The first reading was an e-book that the child her/himself owned and was familiar with and on the e-book platform usually used by the child. This included iPads and other tablets and Kobo e-readers. For the second reading we offered a title new to the child on our own iPad. We provided a selection of highly recommended picture book apps such as Margaret Wise Brown's *Goodnight Moon* or Ian Falconer's *Olivia*. The second reading allowed us to see if and how reader strategies vary in relation to novelty of the text. It also allowed us to control, to some extent, for any differences among participants that might be attributed to specific e-book platforms. Further we provided some e-books that contained high levels of interactivity and others that did not, allowing for another point of comparison. Shared reading sessions were audio-recorded and observed (McKechnie, 2000; 2006) with the observation data recorded as field notes. In addition children old enough to be interviewed (usually children four years and older) and the parents of those who were younger were asked about their children's e-book reading practices. Questions explored topics such as what they liked and didn't like about e-books, how e-book reading compared to print book reading and the frequency of e-book reading.

Older children, those who were reading independently (usually those seven to twelve years old), were asked to show us one of their e-books which they had already read or were presently reading. We asked the children to read a small part of the book while explaining what they were doing and why. We also asked them to open and read a small portion of an e-book which was new to them and which we provided through our iPad. We provided a variety of recommended e-book apps such as Dr. Seuss's *Cat in the Hat* for beginning readers, Beverly Cleary's *Ramona the Pest* for middle readers and Roald Dahl's *Charlie and the Chocolate Factory* for older readers. Some of our interview questions were spontaneously answered through the child's demonstration and explanation of his/her e-book reading. However, we also asked specifically about issues that did not naturally arise (for example, "Will you please show us the things that you particularly like about this e-book?").

Children were allowed to (and in almost all cases did) choose their own pseudonyms. Immediately after each visit audio-recordings were transcribed and the field notes were formally written up and integrated into the transcripts.

Data analysis

As this was an exploratory study we used a grounded theory (Corbin & Strauss, 2008) approach to analyse our data. Transcripts and field notes were coded to identify emerging themes. Tests of inter-coder reliability (Krippendorff, 1988) were conducted to ensure the trustworthiness of the coding scheme. Trustworthiness of the data was also supported by triangulation of methods (interviews, observation and contextual inquiry),

triangulation of researchers which allowed for peer debriefing, and the use of measures of inter-coder reliability during data analysis (Lincoln & Guba, 1980).

Results

Seven important themes emerged from the data.

1. Children love e-books.
2. Most of the children regarded their device first as a gaming space.
3. These kids were all tech savvy.
4. The kids became tech savvy in a number of ways.
5. Traditional books were still very important to the children.
6. E-books and book apps went beyond the print book in a number of ways.
7. For many of these children, a book is a book whether it is a print book or an e-book.

“Every single one is my favourite” (Theo, 4 years): Kids love e-books

Theo (4 years), when asked which were his favourite picture book apps, looked astonished (How could we not know?) when he responded “Every single one is my favourite.” He spoke for the children in this study, all of whom loved e-books.

“Wait a minute . . . E-books also have games?” (Suzanne, 8 years): Device as gaming space

It quickly became apparent that the children regarded their iPads and other devices as gaming spaces first and foremost. Suzanne (8 years) was delighted to

discover the games embedded in most of the picture book apps available for children. After Marietta's mother opened *Pixel and Parker*, an interactive e-book, on the family's iPad Mini, Marietta's hand shot across the screen closed the app and then opened a game. At the time of data collection Marietta had just turned three. When asked what he used his iPad for Jake (12 years) responded: *"Well, I play games. I have lots of games on it. I used to watch hockey on it. And I probably watch videos on it too."* One of the children, Joel (8 years) insisted that his family's iPad had no books on it, only games when in fact it held a fairly large number of e-book apps.

"My first time I knew it. I knew it before I even learned it." (Hero, 8 years): Kids are tech savvy

Hero (8 years) had tapped the house icon on the screen to go back to the main page of the picture book app he was exploring. When asked how he knew that he explained "Houses or anything like that . . . House is always home. Of course." He then proclaimed "My first time I knew it. I knew it before I even learned it" referring perhaps to the intuitive nature of many apps and the ease with which navigating these applications is acquired. Even very young children such as Olivia (2 years old) were quite competent as can be seen in the following excerpt from the ethnographic record.

Observation Note (ON): Mom asks Olivia (2 years) to turn the volume down and she does.

Lynne (researcher): Oh, you know how to turn the volume down. That's really good Olivia!

***"I got it!" (Stella, 3 years):
How kids become tech savvy.***

Stella (3 years) was reading *Airplanes*, a picture book app based on the print book by Byron Barton, when the following interaction occurred.

Stella (3 years): Where is the airplane?

Mom: [Pointing to a cloud, behind which the airplane is hidden] There it is.

Stella: [Touching the cloud again. Plane appears. Sounding very pleased with herself] I got it!

Observation Note (ON): Stella touches word after word and the book app reads the words aloud. Stella has learned to do this very quickly (in a minute or two, right in front of me)

Theory Note (TN): Stella is remarkably independent using this book app. She knows the basic functions like how to turn a page, tapping images and that the words turn red in colour as they are read.

Stella's success with *Airplanes* demonstrates many of ways children learn how to use these apps including: Learning from someone else (scaffolding / shared reading with her mother); exploring on her own; transferring skills she had learned from other apps; and, the structure and characteristics of the apps themselves which encourage exploration.

In addition to parents, children learn from other more skilled and often older children. For example, Silvia (4 years) was observed jointly with her older sister Lianne (6 years). Lianne actively instructed her sister on how to manipulate the app they were sharing, demonstrating actions with her own finger and pointing to correct icons to tap (Observation notes).

Catherine (2 years) was the last child observed in the study. As the visit length stretched to two hours her mother suggested it was time to end. Catherine insisted on looking at just one more picture book app. She chose *Don't Let the Pigeon Run This App!*, based on the print books by Mo Willems. Her first reading was very hectic, a frenzy of tapping and moving backwards and forwards through the app. Our observation notes indicate "Catherine (2 years) presses all the options to make sounds. Presses

areas of the screen to see what makes sounds or produces animation.” After racing seemingly haphazardly through to the end of the book, she insisted on reading it through again. This time our notes describe a much different experience: “[Catherine] begins the e-book again. She goes through the pages more systematically and quicker. She knows what to press and what makes sounds and animation.” Catherine’s first reading, her exploration of the app, allowed her to approach the second reading in a more controlled and appropriate way.

Transferring what is learned in one app to another one was readily evident in the data. Hero (8 years) demonstrated this in the excerpt included above where he describes how “doors” usually take you back to the home page of the app. This was evident in many of the sessions with the children, including Joel (8 years) who transferred his knowledge of the print story to make sense of the app. He was “reading” *Don't Let the Pigeon Run This App* when he said the following:

Joel (8 years): [Reading/Playing *Don't Let the Pigeon Run This App*] Ahh, this is where you yell “No!”

Theory note (TN): Transfer of print reading skills to e-reading contexts.

Some of the picture book apps we provided and a few which the children showed to us, contained characteristics which suggested the app itself had been designed to make how it works transparent to the children and easy to learn to navigate. The picture book app *Pat the Bunny*, based on the book of the same name is an excellent example of this. Random House, publisher of both the print (1940) and e-book (2011) editions, provides a short trailer on its web site which conveys the nature of the app. The trailer may be accessed at <https://www.youtube.com/watch?v=vBUa972-JZo>.



While Elsa 1 (6 years) “read” *Pat the Bunny* we made the following Observation

Note/Theory note:

ON/TN: . . . this book app provides child friendly icons (all images, no text which requires reading) and verbal instructions about how to play. It also suggests repeats – “Do you want to play again?” – and feedback – “You did it!” – which reinforces the learning. This is an exceptional example of how an app itself can be designed so as to make how it works transparent to even very young children. This is not surprising as *Pat the Bunny* in its first interactive toy book format (1940) is intended for very young children (birth to 2 years). But it is surprising in that although other book apps for very young children could benefit from this approach to design, I have not seen any other that uses it.

“That one smells.” (Stella, 3 years):

Traditional books are still important

Stella too read *Pat the Bunny*. Her data collection session took place in one of the researchers' offices, where a large number of children's books used in teaching are shelved, including the original print version of *Pat the Bunny*. Stella noticed the book on the shelf and asked that it be brought down. She then set about reading the print book and the e-book at the same time. When asked what she liked about the print edition, Stella replied "That one smells," a scratch-and-sniff feature of the book. Stella liked the materiality of this print book. Hero (8) years noted "It doesn't need electricity" and "It's better for the environment", a sentiment echoed by Suzanne (8 years) who pointed out "...they don't need to get charged." Jake (12 years) showed us one of his favourite print books, *Captain Underpants*, demonstrating how you could use it as a mini flip book: "Like you can use your thumb and landscape through the pages and make it look like it's moving. You can't do that on an iPad." Jake also pointed out that you could mark your place with a bookmark in a print book and then look to see how much you had read and how much was left to read, a real bonus for a self-identified reluctant reader committed to reading something every day to build his skills.

"You don't have to read them. They read themselves to you." (Joel, 8 years): E-books and book apps went beyond the book in several ways

Like Joel, many of the children liked the special features e-books often provided. Theo (4 years) liked "That you can press the animals and they say stuff." Jayne (6 years) said "I like e-books because they light up. They are different from paper books because they have lights and the iPad lights." Elsa1 (6 years) was a bit shy but,

whispering in her Mom's ear, said she liked e-books "Because they can speak." Sarah (11 years) noted "You don't need a bookshelf." And Lydia (4 years) summed up what most of the children felt when she said she liked e-books "Because they are most fun."

No matter what the format, a book is a book

It became evident during the study that most of the children had an insightful understanding of the evolving meaning of the term "book," understanding it to endure across formats. Lydia (6 years) conflated the two formats when she told us "I like reading paper books because when you press the screen it turns the pages. That's why I like paper books better on the iPad." And Wolfman (8 years), when asked if he prefers print or e-books, simply replied "I read practically the same."

Future research

If e-books are important for children's libraries to collect, it would be useful to understand how they could be effectively inserted into other library services for children. Field studies to explore and determine best practices for integrating e-books into story times and in-library e-book reading stations come to mind. Parent education sessions could be developed and field-tested to encourage parents to use child and format appropriate ways of introducing and using e-books with their children. E-books, even more so than print books, are expensive to acquire mostly because of the internet access and equipment needed to acquire and read them. This raises questions of information equality, always a concern with children but especially for children from low

income families. Action research projects regarding the impact of the provision of e-books to at-risk kids through community organizations such as libraries, co-operative nursery schools, First Nations/Native Americans community centres and Boys & Girls Clubs are needed. As children's e-books have a number of features not present in either print books or e-books for adults, cataloguing and classification practices need to be reviewed and revised so as to ensure effective retrieval of records. Finally, in order to understand the place of e-reading in the entire reading life of children, in-depth case studies of individual children are needed. All of these studies require as a foundation an understanding of children's e-reading practices. We argue that the results of this project have laid a foundation to begin this work.

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