

Today's Tech Literacy Tools

Parental Perceptions of Apps for Preschoolers

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Researchers agree that early exposure to literature is beneficial to a child's cognitive development and countless studies have shown the immediate and long-term benefits of early exposure to literature and language.

Several studies have also shown that literacy software on traditional (i.e., non-touchscreen) computers has a positive effect on children's emergent literacy. However, as a new technology, interactive multimedia book apps, designed for young children and installed on touchscreen devices, have not been the focus of much previous research and our understanding of their use and impact is limited.

The objective of this research project is to gauge parents' and guardians' perceptions of these touchscreen book apps for preschool children and to investigate the extent to which parents/guardians are providing their children with access to book apps, what factors they take into consideration when choosing book apps, and what they consider to be the benefits and drawbacks of this technology in encouraging their young children to enjoy reading for pleasure.

Reading Print Books

Over the past six decades, researchers have noted that literacy emerges early and follows a continuum; children learn literacy behaviors through active engagement, and adults foster this emerging literacy by modeling behaviors and by reading together. Fifty years ago, Dolores Durkin studied the homes of early readers, those who could read proficiently before starting school, and found that in almost every case, someone at home had read to them and encouraged their literacy.¹ In his longitudinal study, Gordon Wells found that the experiences of five-year-olds with books directly related to their reading comprehension at age eleven: children who had the most exposure to books and reading were better readers and performed better at school.²

While many researchers have provided rich and detailed descriptions of the value of reading to children, more recent research has concluded that being read to in and of itself does not automatically encourage literacy.³ According to these researchers, the verbal interaction between adult and child is the link to a successful literacy event: successful storybook



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reading involves participants actively constructing meaning based on text and pictures.⁴

Thus it appears that literacy needs to be nurtured in the preschool years: books have to be available but the child must interact with them and with an adult caregiver who models reading and helps the child to make meaning from print and pictures for the impact to be most beneficial. Several recent studies advocate the use of dialogic reading, which involves asking children questions arising from the content of the story during the read-aloud and expanding on the answers that they provide.⁵ Engaging children through questions encourages children's reading comprehension and their sense of involvement with the story.

The Every Child Ready to Read program (ECRR),⁶ an initiative of the Public Library Association (PLA) and the Association for Library Service to Children (ALSC), focuses on teaching parents and guardians how to help their preschool children develop crucial early literacy skills.⁷ Along with exposure to reading, writing, talking, and singing, play is another crucial aspect of preschool cognitive development and is recognized by the ECRR program as one of the five key early literacy practices that can help promote reading readiness.⁸ Stephen Gass notes that "playing, exploring, and experimenting with open-ended materials as well as building concepts through direct experiences with people and objects are essential for healthy growth and development."⁹

Reading Digital Books

Literacy software for children has been available for traditional (non-touchscreen) home computers since the 1980s, and several studies have demonstrated that these programs, which include simple games designed to teach basic literacy skills, have a positive impact on children's emergent literacy.¹⁰

Similarly, digital picture books for children have been available since the 1990s in a variety of different formats, including online digital libraries such as Tumble Books, electronic books on CD, and e-books downloadable onto an e-book reader such as a Kindle or Kobo. The basic e-book in epub format is quite similar to the print reading experience and offers few interactive features,¹¹ and the uptake of digital picture books for children was relatively slow until the emergence of touchscreen tablets.

Aline Frederico notes, "The publication of digital picture books changed significantly in 2010 with the release of the iPad. In this light, portable, multitouch, high-resolution device, picture books seem to have found their ideal platform in their transmediation into digital media."¹²

Touchscreen technology has encouraged the development of three main types of apps for young children: gaming, creativity, and book apps that allow users to interact with the story and images through sight, sound, and touch.¹³ This functionality

encourages preschoolers with limited fine motor development to engage with touchscreen devices directly using their fingers.¹⁴ According to a study by Digital Book World, sales of e-books for children increased by 475.1 percent in January 2012 and 177.8 percent in February 2012, largely driven by purchases of interactive book apps following Christmas purchases of iPads.¹⁵

In their study of digital books, including interactive book apps, as a resource in preschool literacy and language learning, Kathleen Roskos et al. observed, "For young children, electronic tools will be a chief source of textual information at school and in life. Whether stationary or mobile, the range of electronics from smart boards to hand-held devices already deliver an ever-increasing number of e-books, e-texts, and games. Moreover, the virtual explosion in apps has transformed the traditional storybook of early childhood into a highly interactive, multi-media literacy experience."¹⁶ However, these researchers also note that the long-term impact of digital books, including apps, on children's early literacy skills or on their motivation to read, is unknown.

Some researchers note that the playful element utilized by many interactive apps can be particularly beneficial in helping certain groups of children to develop early literacy skills, especially for reluctant readers and those at risk for developing a learning disability.¹⁷ The 2014 Early Years Literacy Survey conducted by the National Literacy Trust (UK) shows that touchscreen tablet technology encourages boys and children from lower income backgrounds to read for longer periods.¹⁸

Interactive touchscreen book apps can be beneficial for at-risk readers and strong readers alike because they encourage children to learn in a multitude of ways and appeal to a variety of senses: sight, touch, and hearing. Librarian Danny Jacobs advocates the use of iPads in preschool library storytimes as "an excellent way to help engage children in reading and develop their cognitive abilities."¹⁹

However, not all research confirms the value of the interactive book app, and the American Academy of Pediatrics' (AAP) 2011 policy statement, *Media Use by Children Younger Than Two Years*, recommended that children over the age of two should interact with screens for less than two hours a day, noting "by limiting screen time and offering educational media and non-electronic formats such as books, newspapers and board games, and watching television with their children, parents can help guide their children's media experience."²⁰

However, in response to the new media environment created by the iPad and the rapid growth of apps aimed at young children (and subsequent to the data collection that forms the basis for this study), the AAP released a new set of guidelines that are less prescriptive, and that recommend a more nuanced approach. These new guidelines observe that digital media, like any environment, can have negative or positive effects, and that parents should be actively involved with their children's real and virtual environments. The revised guidelines urge parents to be selective in choosing apps and to co-engage as much as possible while their children are using digital media.²¹

While the AAP has softened its position on childhood media use, several recent studies suggest that book apps for young children may be more detrimental than beneficial to the development of literacy skills and the enjoyment of reading. This critical perspective is supported by a study by Heather Schugar, Carol Smith, and Jordan Schugar in which the researchers observed teachers using interactive book apps with children in kindergarten to grade six and found that the very richness of the multimedia experience frequently overwhelmed children's understanding or recollection of the narrative. This was particularly problematic in book apps with many irrelevant but appealing distractions, which diffused children's attention away from the story. In this study, Schugar, Smith, and Schugar found that, on average, children spent 43 percent of their time using book apps playing games rather than reading or listening to the text.²²

Similarly, a study by Julia Parish-Morris and her colleagues showed that preschool children had lower comprehension when their parents read with them using a multimedia book app than when their parents read them a print book, largely because of the distracting interactivity that focused children's attention on the device rather than the story,²³ and a study of Australian preschoolers revealed that time preschoolers spent on tablets at home was not related to the development of any emergent literacy skills.²⁴

Clearly, parents are faced with a confusing array of often contradictory evidence when it comes to deciding whether or not to allow their preschool children to access book apps. Should parents consciously ration their young children's screen time or should they encourage their preschoolers to develop literacy behaviour at least in part by interacting with book apps? And if they decide to provide access to book apps, how can parents confidently select apps that provide educational as well as entertainment value?

This exploratory study asks parents and guardians of preschool children about their perceptions of the benefits (and potential risks) of reading both print books and interactive book apps to get a sense of what parents and guardians are actually thinking (and doing) when it comes to providing their young children with access to this technology.

The Research Study

This study consisted of an online survey (see appendix) created using Opinio software, which was circulated to parents and guardians of preschool children during June 2014, using the researchers' social media accounts (Facebook and Twitter). The survey invitation was also made available through the Nova Scotia Read To Me early literacy program website, the Dalhousie University daily newsletter, several daycares in the Halifax region, and the summer reading program run by the New Brunswick Public Library.

Thus the survey respondents ($N = 133$) represent a convenience sample primarily drawn from the provinces of Nova Scotia

and New Brunswick, which may not be broadly representative. However, this sample does provide some interesting insights into parents' often conflicted attitudes toward book apps for their preschool children.²⁵

Reading Physical Books

The survey results indicated that the majority of respondents were committed to reading print books with their children—98 percent indicated that they read physical books to their children, at least occasionally, and 88 percent read physical books with their children at least once a day. The rationale participants gave for reading to their children varied greatly. Respondents cited reasons such as helping their children's overall learning (45 percent), developing their child's vocabulary and language skills (38 percent), increasing their child's comfort with books and reading (39 percent), and developing their child's ability to recognize words and letters (15 percent) as some of the main benefits gained from shared reading of physical books with their children.

Respondents also recognized the value of shared reading in nurturing other aspects of children's development. Thirteen percent of respondents said they read to their children because it was entertaining, 24 percent said reading helped develop their children's imagination, 8 percent said it nurtured creativity, and 7 percent cited exposure to art and visual stimulation as benefits gained from shared reading of print picture books.

However, parents and guardians noted that daily quiet bonding time was as important a benefit of traditional shared reading as was the development of literacy skills; 47 percent of respondents cited this as one of the major reasons for reading to their children. One parent commented, "[Reading picture books together helps my child] develop literacy skills, develop emotional/empathy skills, learn about the world around her, [and it is also] time spent together without distractions." Another parent emphasized the importance of reading together in creating emotional closeness: "Being close, sitting together, while reading, early familiarity with words and language, recreation time together."

Use of Book Apps

Fifty-three percent of respondents indicated that they also provided their children with access to book apps, the majority on an iPad. These parents cited several benefits of book apps, as summarized in figure 1, noting that apps are entertaining (78 percent) and convenient (70 percent), and could be educational (74 percent). Fifty-six percent felt that apps increased their children's enjoyment of reading while only 34 percent cited affordability as a key advantage. (Note: Respondents were encouraged to select all the categories that applied, so the total is greater than 100 percent).

Only a minority of parents wholeheartedly and unreservedly embraced book apps as beneficial for their young children. One such parent praised apps for their "gamification of learning to

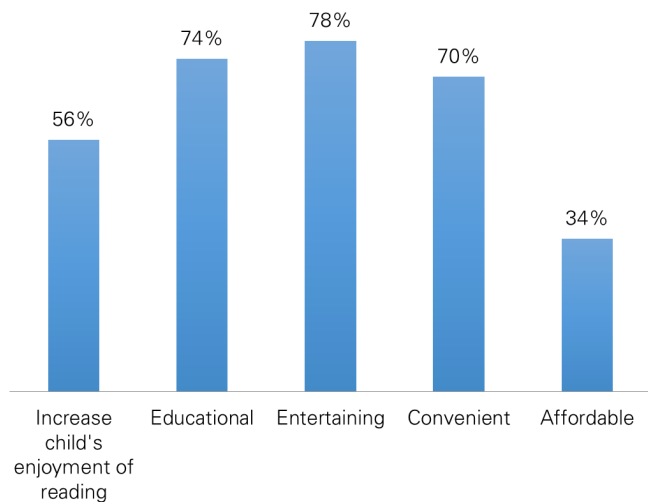


Figure 1. Parents' Perceptions of the Benefits of Book Apps (N = 133)

read [by providing] incentives. [Apps provide] child-led learning, not dependent on adult involvement.” Other parents favored apps for their convenience and easy portability and some also noted that early exposure to technology, in and of itself, could be beneficial, with statements such as “My child will be using digital technology all her life. Why not start her early?” Another parent enthused, “Children love technology! My five-year-old would rather use the tablet than look at books.”

However, most parents, even those who provide their children with access to book apps, expressed reservations and anxiety about giving their children too much screen time, and many indicated that they only allowed their children to use book apps in tightly controlled situations, such as when traveling outside the home, when traditional books were not available or convenient to transport.

Parents and guardians indicated that, in their view, book apps presented several key disadvantages when compared to traditional physical picture books. One of the strongest themes emerging from this question was a strong parental preference for print books and overall concern that early use of book apps could result in an “addiction” or dependency on technology and, in particular, that the stimulating interactivity of the book app could diminish children’s enjoyment or appreciation of physical books.

One respondent commented, “Too much technology isn’t always a good thing. [Preschool children] should appreciate actual books without the bright lights and add-ons that come with electronics. I don’t want my pre-school child learning how to use a tablet by himself—I want him to flip pages and see actual pictures and words on a page.” Another parent expressed a similar concern: “Too much time is spent in front of a screen, not enough time with a physical book. Learning to write goes hand in hand with learning to read—not just tapping a button or a word.”

An equal number of survey respondents identified the lack of adult/child bonding time as a strong disincentive of using book

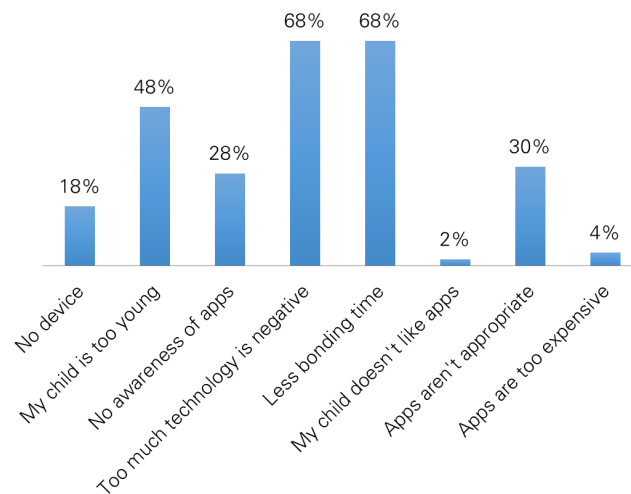


Figure 2. Parents' Perceptions of the Disadvantages of Preschool Book Apps (N = 133)

apps. Parents and guardians expressed misgivings about the replacement of human interaction by an increased reliance on technology.

One respondent commented, “I believe the interactive nature of hard copy books provide[s] more than just learning to read. The shared engagement in book reading is a positive experience for both partners and this shared engagement and the interaction that occurs builds other communicative and social skills. It can be difficult to build interactive/shared experiences around screen devices.” Another stated, “Lack of interaction between parents and child [is negative]. [The child] falls into the video stupor.”

Figure 2 summarizes survey respondents’ perceptions of the disadvantages of book apps (Note: Respondents were encouraged to select all the categories that applied, so the total is greater than 100 percent).

Selecting Book Apps

The survey also asked parents and guardians about the criteria they used when selecting book apps for their preschool children. Interestingly, respondents indicated they intuitively sought many of the same characteristics they looked for when choosing which print books to read with their children. The most commonly sought feature for a successful book app is entertainment value, and respondents stated that apps had to be fun and interactive or children would not want to use them.

But many parents and guardians also expressed a desire for educational features, which reinforce reading readiness, such as an understanding of sequential narrative events, an interest in reading words, development of vocabulary, and an understanding of sound-letter correspondences. Parents praised book apps that reinforce these skills, making comments such as “I like the books where she can have the tablet read to her, or where she can tap on an individual word and it will read it

to her;" "[I prefer book apps which teach the] sounds of letters and breaking down words;" "I like an app that highlights words as they are read, has a dictionary that will tell my daughter the definition of a word and has no moving pictures, just still pictures. I like this because it shows her that we read left to right, helps broaden her vocabulary, and focuses on the reading aspect, rather than being similar to a television show."

These parents were clearly aware that book app activities need to support early literacy skills such as those identified by ECRR to be effective in stimulating emergent literacy. Parents and guardians also identified ease of use, price, quality of graphics, and a lack of advertising as other key selection criteria. Several respondents indicated that they researched book apps and read reviews before purchasing them for their children.

While a minority of respondents were unequivocally opposed to book apps for their preschool children and said they did not believe that preschool children should have any "screen time" whatsoever, most respondents indicated a more balanced view, accepting that exposure to technology was inevitable and could be turned to a positive advantage as long as it was not used to replace shared reading of print books.

One parent commented, "Reading with my child is one of the great pleasures of my day. We generally only use apps when a distraction is necessary, and we've forgotten to bring traditional books with us. My child loves reading, stories, and words and is completely content when reading and being read to, whether it is a traditional book or a book app." Another parent commented that her preschool children took the lead in selecting book apps: "Honestly, [the book app] is usually selected by them with my consent. My position is that literacy is literacy. If they want to develop reading skills using an Ironman/Batman book app, that's great. It's all about what piques their interest. Picking what to read is half the fun. If someone else picked my reading material, I probably wouldn't want to read."

Several parents emphasized the idea that book apps were just another form of reading and should be used in conjunction with print books: "Apps are a treat and used to complement our one-on-one reading, not replace [it]"; "It is all about balance—children should be exposed to numerous reading opportunities and can benefit from the positive aspects of [both] traditional reading and apps."

This study demonstrates that many of the parents and guardians of preschoolers who responded to this survey are experiencing some anxiety and confusion when trying to decide whether or not to allow their children to interact with book apps. Even parents who provide this access frequently report mixed feelings ranging from mild concern to guilt, and worry that this exposure may have a long-term negative effect on their children's future literacy development.

At the same time, many parents and guardians explicitly recognize that their children will live in a world dominated by technology and feel that it is unrealistic to erect artificial barriers

between their preschoolers and digital information. Clearly, librarians can play a key role in sharing research findings with concerned parents and in helping them to select apps in which the interactivity supports or reinforces the story and develops emergent literacy rather than apps featuring unrelated distractions. A good book app should reflect the benefits and engagement of dialogic reading²⁶ and the positive benefits of creativity and imaginative play that are found in real-world recreation.

As parents themselves noted in this survey, perhaps one of the easiest ways to judge whether or not a book app is "good" is to hold it to the same standards by which traditional picture books are judged. Is it age appropriate for the target age range? Do the pictures add to the text or are they stand alone? Can the child easily navigate from page to page as they can with a real book? A "good" book app would have all these characteristics plus the extras that a traditional book simply cannot provide. Researchers and parents agree on one key point: keep the app simple; ensure that all aspects of the app add to the value as a whole, and avoid fancy "bells and whistles" that simply distract rather than reinforcing the story.²⁷

Conclusion

Research consistently demonstrates that traditional adult-child shared reading of print picture books is beneficial for the cognitive development of preschool children and preliminary research also suggests that well-designed book apps may have a similar beneficial effect. Reading, speaking, and playing with children are all keys to helping children develop essential reading readiness skills. Children begin to develop these lifelong skills long before formal education begins, thus making early exposure to books and reading so critical. While there has been much research done on the benefits of traditional reading on a child's development, interactive book apps are a relatively new technology and there has not yet been time for longitudinal studies to measure the long-term effect of preschool children's exposure to this new form of reading. It would be beneficial for future research studies to compare the effect on emergent literacy of using book apps versus traditional shared reading of print picture books. At the present, parents and guardians must choose whether or not to give their children access to book apps in the absence of definite knowledge of the impact of this exposure.

The findings of this study suggest that parents are adopting a variety of strategies. Almost all parents and guardians who responded to our survey indicated that they are committed to reading physical picture books to their children, and believe that this shared reading time is extremely beneficial both for their children's education and cognitive development and for emotional bonding.

Furthermore, it was clear that very few respondents were adopting book apps without some degree of caution (and even outright anxiety) and a significant minority of parents and guardians consciously chose not to provide access to book

apps at all because they feared apps could be detrimental to their child's cognitive or emotional development and would detract from their children's appreciation for shared reading of print books. Based on the findings of this exploratory study, it is clear that book apps are not perceived as a replacement for traditional reading of physical books and, in some cases, they are perceived as an overt threat to this shared reading time.

Overall, the parents and guardians who responded to this survey feel that book apps are best used occasionally or as a supplement to traditional reading and their primary advantage is their convenience and entertainment value. Parents and guardians still consider traditional reading of physical picture books to be the preferred method for introducing young children to books and reading. ☺

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Appendix. Survey

Screening question:

Do you have a preschool child or children?
[If no, the survey ends].

If yes, please indicate their age(s) and gender(s).

Section 1: These questions will focus on traditional reading practices:

1. Do you read to your child/children? Yes/No [If no, go to next section]
2. If yes, how often do you read to your child/children?
 - a. Several times a day
 - b. Once a day
 - c. Occasionally
 - d. Infrequently
 - e. Never
3. Do your children participate in any formal storytimes? For example, at a local library or preschool?
4. What do you think are the main benefits of reading to your child/children?

Section 2: The next section will focus on book apps for children:

1. Does your child have access to book apps? [If no, go to question 6]
2. If yes, on what type of device? (For example, smartphone, tablet, laptop, desktop)
3. If yes, does your child use book apps with adult supervision? Yes/No
4. If yes, why do you provide your child/children access to book apps? Please select all that apply:

- a. They increase my child's enjoyment of books and reading.
- b. They are educational.
- c. They are entertaining.
- d. They are convenient.
- e. They are affordable.
- f. Other:

5. What criteria do you use to select a book app for your preschool child? In your opinion, what makes a good book app for children?
6. If your child does not have access to book apps, why not? Please select all that apply:
 - a. I do not have an appropriate device.
 - b. I feel my child is too young to use this technology.
 - c. I am not familiar with book apps for young children.
 - d. I prefer to read print books with my child.
 - e. My child doesn't like book apps.
 - f. I do not feel that book apps are appropriate for young children.
 - g. Book apps are too expensive.
 - h. Other:

Section 3: The next section will focus on traditional reading practices vs. book apps:

1. What do you think are the main benefits of book apps for young children?
2. What do you think are the main disadvantages of book apps for young children?
3. Is there anything else you would like to say about reading with your preschool child?