

# Parent Preferences: e-Books Versus Print Books



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**Abstract** According to a nationwide survey in the U.S., nearly all (98%) of children between the ages of zero to 8 years have access to a mobile device (Rideout V, The common sense census: media use by kids age zero to eight. Common Sense Media, San Francisco, 2017). The pervasiveness of mobile screen devices has introduced e-books into the home, however, parents report that only 28% of children have ever read a book on a smartphone or tablet (Rideout V, The common sense census: media use by kids age zero to eight. Common Sense Media, San Francisco, 2017). This mismatch between availability and use may be due, in part, to parental skepticism about the value of e-books for their children (Rideout V, Learning at home: families' educational media use in America. Joan Ganz Cooney Center, New York, 2014). In order to maximize the effectiveness of e-books, it is critical to establish whether and how families use e-books with their children, and what features parents look for in e-books. Thus, the current study analyzed Amazon Mechanical Turk survey data on parent-reported reading behaviors, as well as parent perceptions about contexts and feature preferences for children's print books and e-books.

**Keywords** Parent survey · Book preference · Print books · e-Books · Parents · Preschoolers

## 1 Introduction

According to a nationwide survey in the U.S., nearly all (98%) of children between the ages of zero to 8 years have access to a mobile device (Rideout 2017). The pervasiveness of mobile screen devices has introduced e-books into the home,

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however, parents report that only 28% of children have ever read a book on a smart-phone or tablet (Rideout 2017). This mismatch between availability and use may be due, in part, to parental skepticism about the value of e-books for their children (Rideout 2014). In order to maximize the effectiveness of e-books, it is critical to establish an understanding on whether and how families use e-books with their children, and what features parents look for in e-books. Thus, the current study analyzed Amazon Mechanical Turk survey data on parent-reported reading behaviors, as well as parent perceptions about contexts and feature preferences for children's print books and e-books.

### ***1.1 Mobile Screen Media Prevalence for Preschool-Aged Children***

There is a plethora of research suggesting that today's youth are becoming increasingly immersed in mobile screen media. On average, children between the ages of zero and eight spend over 2 h using screen media daily, with children from lower-income homes spending three and a half hours a day on screen media (Rideout 2017). Furthermore, children spend about 48 min per day in total using mobile devices for both entertainment and educational purposes, which is a trifold increase since 2013 (Rideout 2014, 2017). Preschool-aged children 2–4 years old are the most avid users of educational media, with 78% of their total screen time devoted to educational content (Rideout 2014).

Overall access to media for children across socioeconomic statuses is becoming more equivalent, with 96% of children from low income families having access to a mobile device. Similarly, children from lower-income families (40%) are as likely to have their own tablet device as children from higher income families (45%) (Rideout 2017). Considering the rising equivalency of device access for children from all backgrounds, e-books have the potential to readily reach at-risk children (Revelle et al. [this volume](#)). However, many look to e-books with both apprehension and hope for influencing early reading development (Guernsey et al. 2012; Van Daal et al. [this volume](#)).

### ***1.2 The Importance of Reading***

It has been well established that reading is of central importance for healthy child development. Reading to children early and often is considered an important epigenetic factor, with implications for later reading skills and success (Mendelsohn et al. 2001). The American Academy of Pediatrics (AAP) recommends that all parents read aloud with their children daily, both to build parent-child relationships and to enhance brain development (High et al. 2014). The period from birth to age

five is a particularly critical time for book reading as a support for early literacy development (Duursma et al. 2008). However, only 57% of children in the U.S. on average are read to on a daily basis; a number that drops to 40% for children from lower socioeconomic status (Rideout 2017).

Furthermore, research has suggested that the number of books (both digital and print) in the home influences academic achievement, with the presence of as little as 25–50 books enhancing test scores by up to a grade level (Evans et al. 2014). This enhancement is greatest for families from lower income levels, where each additional book has the potential to impact performance. (Evans et al. 2014). Historically, socioeconomic status has been linked to children’s access to books, but as the digital divide is closing e-books could serve as a valuable boon for lower-income children’s home libraries (Rideout 2017). However, on average, children spend 29 min a day reading or being read to, with 26 min spent on print books and only 3 min a day spent with e-books (Rideout 2017). This may be due, in part, to findings that children’s access to e-books is heavily influenced by parent perceptions and expectations of media (Rideout 2014). Many parents claim to restrict children’s access to e-books, and have ranked mobile screen devices as the least educational platform compared to television, computers, and video games (Rideout 2014). For this reason, it is essential to develop a further understanding about the reasons for and contexts in which parents use e-books and print books in their home, as well as their attitudes about each medium.

### *1.3 Parent Attitudes Toward Media*

In the U.S., over 76% of parents agree that the less time kids spend with screen media, the better (Rideout 2017) but at the same time, three out of four parents agree that digital media use is an important skill for their kids to develop (Common Sense Media 2008). These and conflicting attitudes represent the confusion that parents face while trying to raise children in a quickly evolving digital world. Although books are not new media, electronic books are recent developments that have changed the definition of “reading,” and parents have been left to their own devices to select and use these reading materials with their children.

The AAP (2016) suggests that parents select high quality media for their preschoolers, use it with them, and limit screen time to less than 1 h per day. For e-books specifically, the AAP (2016) suggests parents be wary of e-books’ interactive enhancements, but should use e-books like they would use print books with their child. However, only one out of five parents are aware of the AAP recommendations, and 29% are not interested in these recommendations (Rideout 2017). For e-books especially, these AAP recommendations are easier said than done.

Children’s media are not often designed for a dual audience, and e-books in particular are loaded with interactive features to promote independent use. Ninety-five percent of children’s e-books contain narration (Guernsey et al. 2012), which can

minimize the parent's role in joint book reading. Both parents and children become frustrated during joint book reading when the parent tries to read aloud an enhanced e-book with highly interactive features (Chiong et al. 2012). Given these difficulties, do parents actually want to use e-books the way that researchers and practitioners advise them to? This has yet to be established.

## ***1.4 Overview of the Current Study***

Children are immersed in technology, and e-books are becoming more readily available. However, parents report that children are rarely using e-books (Rideout 2017). Perhaps parents are hesitant to accept e-books as equivalent social and learning tools compared to print books. Whether or not e-books are satisfying parent needs and expectations has yet to be established. The purpose of the current study is to explore how children and parents are navigating e-books compared to print books in the home. Using an Amazon Mechanical Turk survey, parents ( $N = 2260$ ,  $M$  age = 32.00 years) of preschool-aged children ( $M$  age = 4.15 years) answered questions about children's e-book and print book use, attitudes, and preferences. While previous research has investigated parent beliefs around media, this study is the first of its kind to explore the specific features that parents prefer within different book formats that potentially serve different purposes.

## **2 Methods**

### ***2.1 Participants and Design***

In total, 2260 parents of preschool-aged children (3–6 years) in the U.S. were recruited using Amazon Mechanical Turk (MTurk). Forty-two (less than 1%) of the MTurk survey participants were excluded from the survey due to failure on quality control questions, such as “This is a quality control question, please select “Strongly Agree””. This is much lower than the average (20–30%) dropout rate for MTurk surveys (Keith et al. 2017). MTurk survey participants are generally a specific subset of people that differ slightly from the overall U.S. population. For socioeconomic representation, MTurk workers are typically highly educated (Berinsky et al. 2012) and middle class (Shapiro et al. 2013). Most MTurk respondents identify themselves as White/Caucasian; compared to the US population, those who identify themselves as Asian/Pacific Islander are overrepresented, while those who identify themselves as Black/African American or Hispanic/Latino are underrepresented (Shapiro et al. 2013). These general demographic findings for MTurk participants match the demographics of the current sample.

Of the 2243 participants (99% of the sample) who responded to the race and ethnicity questions, parents identified as 54.9% White, 31.6% Asian, 7.6% Black or

African American, 3.7% American Indian or Alaska Native, 0.8% Native Hawaiian or Islander, and 4.3% “other”. Parents were highly educated, with 19.5% having a graduate school degree, 49.4% college graduates, 23.1% with some college education, and only 8.3% with a high school or GED and below. Parent age was 32 years on average, ( $SD = 6.40$ , range 18 to 65+). Most parents were employed, with 55% having a full time job, 16.9% with one part time job, 6.7% with multiple jobs, 2.6% students, less than 1% retired, and 17.6% unemployed. Parents also reported their subjective social status by placing themselves on a ladder that represents people who have the least money, little or no education, and no job or a job that is not respected at the bottom (1) and people who have the most money, highest level of education, and highly respected jobs at the top (10) (Adler and Stewart 2007). Parents’ average status on this measure was 6.03 ( $SD = 1.81$ , range 0–10). The parent reported age of their preschool-aged child (43% female) was about 4.1 years ( $SD = 1.07$ , range 3–6 years).

After opting-in to the study and providing electronic consent, MTurk workers were provided with a short survey that took about 10 min to complete. Previous research on participation rates using MTurk has found that higher pay per task (i.e., 50 cents versus 2 cents) significantly increased participation rate and data quality was not affected by compensation amount, suggesting that low compensation does not have a negative consequence on data quality (Buhrmester et al. 2011). In order to provide participants with competitive pay and have respectable participation rates, participants were compensated 20 cents upon successful completion of the survey.

The survey contained questions about child usage of books, beliefs of book purpose, and preferred book features. To gain information on how children are actually using books in the home, parents were asked to indicate a “main” reason that their child uses both e-books and print books. Provided reasons included: for bedtime routine, for entertainment, for learning, for relaxation or soothing, to occupy child while caregiver is busy (e.g., preparing meals, showering, etc.), for bonding with family members, for fun during playtime, for travel (e.g., car, bus, airplane, etc.), or for safety (e.g., staying out of trouble). Parents were also asked to indicate how frequently their child uses e-books or provide reasons as to why their child does not use e-books. Additionally, parents were asked how often their child uses e-books independently.

For beliefs about book purpose, sample images of four different book formats (interactive e-book, simple e-book, interactive print book, simple print book) and descriptions for each were provided in the question. For each book format, parents were asked to identify the purposes they serve from a list (entertaining, learning, calming, bonding). Parents were allowed to select all answers that applied.

To investigate specific book feature preferences, parents were asked to indicate how much they agree with statements about print book and e-book features on a scale from 1 (strongly disagree) to 7 (strongly agree). Features for both e-books and print books included: narration, visual appeal, sound effects, mini games, positive story messages, educational content, familiar characters, simple features, and low cost. One feature was phrased differently depending on the book format for clarity: “moving pieces” (print books) or “animations” (e-books). Each feature was presented with detailed phrases like “I prefer e-books with mini games (e.g., puzzles, mazes, sorting) for my child to play” for each book format.

### 3 Results

#### 3.1 Reported Usage of e-Books and Print Books

Parents were asked to report the reasons their children actually use e-books and print books in the home. Simple distributions showed that learning was the most important reason children use both print books (28%) and e-books (23%). While 25% of parents reported print books were mainly used for bedtime, only 5% of parents reported so for e-books (Fig. 1). More parents selected print books for bonding (11%) compared to e-books (4%). On the contrary, 21% of parents reported the most important reason their child uses e-books is for entertainment, while only 12% of parents said so for print books. Similarly, 15% of parents ranked e-books as most importantly used for travel, while only 4% for print books. A slightly higher amount of parents selected playtime for e-books (13%) compared to print books (8%). 11% of parents said e-books occupy children while they are busy, but only 3% said so for print books. Playtime, relaxation, and safety were less common responses in general and had similar patterns of results for both book types. Overall, learning and bedtime were the most important reason of use for print books, while learning and entertainment were the most important reasons for e-books.

**Frequency of Book Use** Parents were also asked to report their child’s e-book use frequency. Twenty-one percent of parents reported that their child uses e-books daily and 28% reported several times a week. Some parents stated their child uses e-books once a week (11%), less than once a week (8%), once a month (4%), every few months (3%), and once or twice per year (2%). Parents who said their child had ever used e-books indicated how often their child uses them independently. Thirteen percent said their child always uses e-books independently, 26% said most of the time, 20% said about half of the time, 29% said sometimes, and 12% said never.

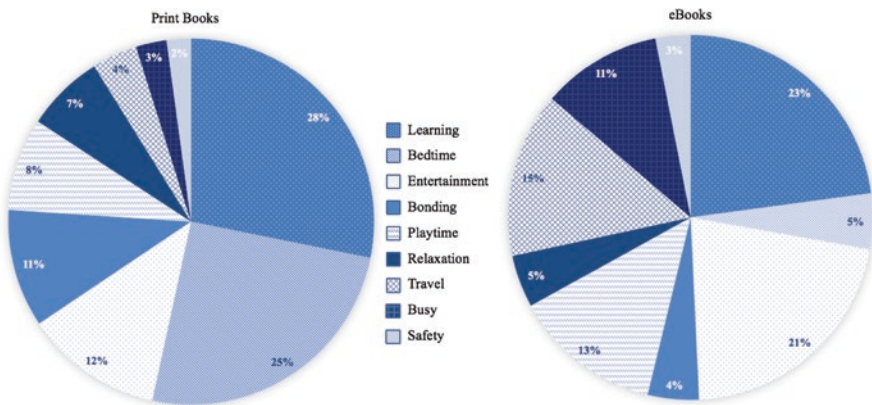


Fig. 1 Most important reason indicated for children’s actual use of print books (left) and e-books (right)

Overall, 23% of parents remarked their child never uses e-books. These parents were asked to select reasons their child does not use e-books from a list of options. Adapted from previous parent survey research by Rideout (2014), these parents claimed their children do not use e-books because: they believe their child is too young (21%), they prefer the experience of print books (19%), they wish to limit their child’s time with screen devices (17%), they believe that print books are better for learning (11%), they fear that the child will break the electronic device (8%), they worry their child will want to use it all the time (8%), they believe their child gets too distracted by the features (7%), their child is not interested in e-books (5%), there are not enough good e-books available (2%), or some “other” reason not provided (2%), the most common of which was access or cost prevents their child from using e-books. In summary, although some children (23%) never use e-books, the majority (77%) do use e-books, and often independently.

### 3.2 Beliefs About Book Purposes

Parents were asked to indicate the purpose of four different book formats (noninteractive print, interactive print, noninteractive e-book, and interactive e-book). Simple distributions showed that for interactive e-books, parents selected learning (43%) and entertaining (40%) purposes equally, while bonding (10%) and calming (7%) were less common (Fig. 2). Results were comparable for simple e-books, with learning (36%) and entertaining (42%) purposes high, while bonding (12%) and calming were low (10%). Interactive print books were rated as high for entertaining (53%), somewhat for learning (24%), and low for bonding (16%) and calming (7%). Simple print books were rated as high for entertaining (21%), somewhat for learning (27%), and low for bonding (23%) and calming (30%).

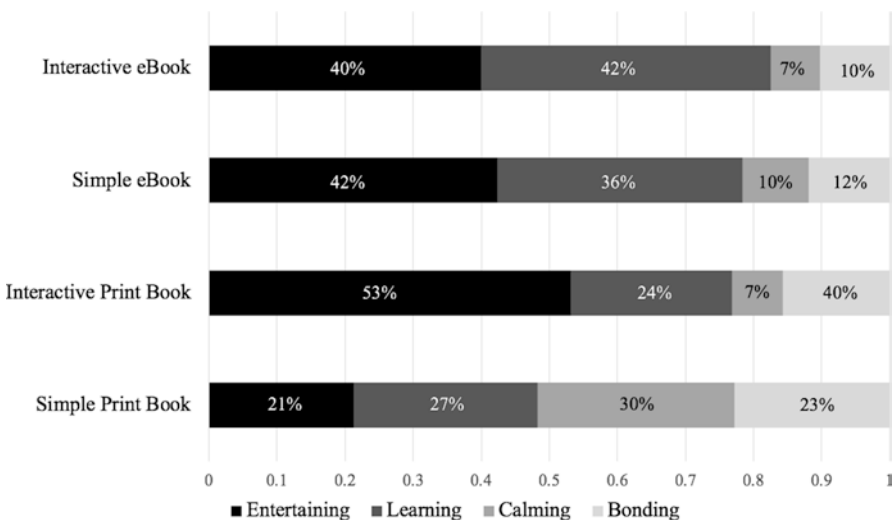


Fig. 2 Percentages for beliefs of book purpose as a function of book format

print books had the most evenly distributed purposes, with moderate entertaining (21%), learning (27%), bonding (23%) and calming (29%) scores. In summary, interactive e-books, noninteractive e-books, and interactive print books, were rated similarly as mostly used for entertainment and learning, but not calming and bonding. However, simple print books were used equally for all purposes.

### 3.3 Preferred Book Features

Parents were asked to rate the importance of specific features of print books and e-books separately. Given that the data were positively skewed, ranked, and from a within-subjects design, Wilcoxon matched pairs signed rank tests were conducted using SPSS. Results indicated that parents provided significantly higher ratings for print books in categories including the importance of educational content ( $Z = -5.61, p < 0.001$ ), visual appeal ( $Z = -9.49, p < 0.001$ ), positive messages ( $Z = -5.84, p < 0.001$ ), and simple features ( $Z = -6.23, p < 0.001$ ) compared to e-books (Fig. 3). For e-books, parents provided significantly higher ratings for the importance of low cost ( $Z = -6.44, p < 0.001$ ), movable features ( $Z = -4.09, p < 0.001$ ), mini games ( $Z = -10.39, p < 0.001$ ), narration ( $Z = -15.47, p < 0.001$ ), and sound effects ( $Z = -22.24, p < 0.001$ ) compared to print books. There was no difference in preference for familiar characters by book type ( $Z = -1.23, p > 0.05$ ).

### 3.4 Pressures and Perceptions

Parents were asked an optional open-ended question about the experience of print books compared to e-books. Of the parents who answered this question (69%), many claimed that print books offer a fundamentally different experience compared to e-books. For example, one parent stated,

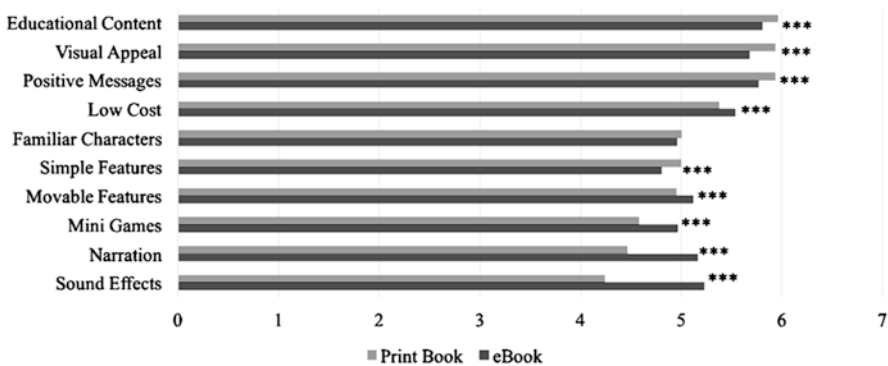


Fig. 3 Reported mean importance of book features for print books (orange) compared to e-books (blue) on a likert scale from 1 (strongly disagree) to 7 (strongly agree). \*\*\*  $p < 0.001$



The experiences are different, I feel as though bonding is more prevalent with print books, as ebooks can be a little too “gamey”. The game aspect is great for pulling the child in and getting them excited for reading, but when reading with my child I prefer the old fashion print book in bed for bedtime.

This theme of print books as “*old-fashioned*” came up repeatedly, with many parents using statements like “I want my child to be able to appreciate a simple, old-fashioned book”. Another parent elaborated on the old-fashioned experience of print books, claiming the materiality of a print book is important: “I’m a big fan of good old-fashioned books you can hold in your hand and actually turn the pages. Somehow, e-books just seem too artificial to enjoy much.” As this quote illustrates, children’s print books are considered old-fashioned due to their authentic tactile features. Book *physical sensation* was described as important for many parents. Parents described things like “holding the book” and “feeling the pages” during joint parent-child reading experience.

Similar to the importance of physical sensation, the experience of reading print books was described as more emotionally stimulating as compared to e-books. While contrasting the experience of e-books and print books, one parent elaborated,

They are completely different. One requires a parent to lovingly open a book and turn the pages and use their own voice to read to the child. The other removes the parent from the equation and removes the bonding element.

When describing experiences with print books, words like “bonding” and “spending time together” were commonly used. While parents highlighted print books as catalysts for familial quality time, e-books were not described as such. Indeed, e-books were often characterized as tools for children to use alone. One parent said,

I tend to like print with my child over eBooks. eBooks (he has a LeapFrog) are better for him alone. He likes to use his iPad a lot too. But reading print books gives a closer bond for us. I personally read eBooks (kindle) myself before bed.

Numerous parents appreciated e-books’ ability to be used independently. Specifically, parents enjoy e-books for travel and to occupy children while caregivers are busy. Many stated that e-books can be loaded on one device, transported easily, and read the story aloud to the child. These previous statements underscore the unique affordances and roles that e-books and print books serve within different everyday contexts.

## 4 Discussion

Results from this survey indicate that children use e-books for different reasons than they use print books in the home. Although both book formats are used predominantly for learning, their other reported uses differ. Print books are more commonly used for *social* purposes, such as bedtime routine and bonding. e-Books, on the other hand, are used more frequently for *babysitting* purposes, such as entertaining and occupying children. Indeed, parents reported their children use e-books often, with

about half of parents (29%) claiming their preschooler uses e-books several times a week or more. Additionally, these children use their e-books alone quite frequently (only 12% of parents report their child does not use e-books alone). These results suggest that e-books and print books serve fundamentally different purposes and are used as such, which is further explained by parent perceptions of children's book formats.

e-Books and print books were broken down into interactive and noninteractive formats to see if interactivity had an influence on parent perceptions of book purpose. The results showed that parents believe e-books serve educational and entertaining purposes, regardless of interactivity. Surprisingly, interactive print books (e.g., pop-ups, pull-tabs) were considered to serve even more of an entertaining purpose than e-books. However, interactive print books are rare and expensive, therefore they may be considered more of a treat compared to other book formats. Traditional print books are believed to serve the most diverse purposes, serving entertainment, learning, bonding, and calming equally. How parents have established these purposes has yet to be explored.

It is likely that existing e-books and print books that are available have influenced parents' experiences and shaped their perceptions. It is very rare for children's e-books to be completely noninteractive (Guernsey et al. 2012). Children's e-books on the market today often contain "hypermedia" functions (Bus et al. 2015). Hypermedia, or highly interactive features, such as irrelevant mini games, animations, hotspots, and the like can be highly distracting. When interactive features are distracting rather than enhancing, children's learning from the book can be compromised (Bus et al. 2015). Similarly, parents have a difficult time reading to their children when interactive features are present (Chiong et al. 2012). Perhaps the overwhelming features that are pervasive within children's e-books have driven parents to brand e-books as entertainers. Print books cannot physically afford the same elaborate interactive features that e-books can, which may make them more enjoyable for parents to jointly use with children.

Another physical affordance of electronic books is a screen. Along with stimulating interactive capabilities, screens also emit blue light, which suppresses the production of melatonin and inhibits proper sleep (Brainard et al. 2001). Parents reported in this survey that print books were commonly used for bedtime, but not e-books. Previous research has shown that reading an e-book compared to a print book before bed delays the onset of sleep (Chang et al. 2015). The physical trait of a light-emitting screen makes e-books inherently worse for bedtime (Lewy et al. 1980), even though the content could be the same as a beloved printed bedtime story. Book physicalities and features seemed to be a strong driving factor in shaping parents' perceptions of different book formats.

Parents care the most about educational content, visual appeal, positive story messages, and simple features for children's books. However, they value these features within print books more than they do for e-books. For e-books, parents value low cost, movable features (e.g., animations), mini games, narration, and sound

effects. Given the affordances of screen devices, the preferred features for e-books are not surprising. These data also match the previous results that parents believe simple print books serve more of a social purpose, where beautiful art, feel-good stories, and minimal distractions seem appropriate. For the purpose of e-books as a babysitter, the importance of low cost, read aloud functions, and bells and whistles seems fitting as well. However, it is interesting to note that parents rated educational content as a more important feature for print books than for e-books. These findings do not match the results on parent-reported book purpose, where e-books were rated with higher educational purpose than traditional print books. However, it is possible that although parents hope for e-books to be educational tools, the current existing print books have higher educational quality than the latest available e-books and are therefore held to a higher standard.

Other book features described in the open ended questions were demonstrated to be highly influential on parent book preferences. Print books were favored for their old-fashioned, physical and emotionally rich experiences. While print book themes were rather sentimental, e-book themes were about practicality. Parents valued e-books for their portability and ability to be used alone by their child. Again, these results align with the purposes that parents have assigned to everyday print books and e-books.

Taken together, these findings illustrate that parents perceive and prefer e-books and print books for different purposes. Given these results, perhaps it is time for researchers to turn the page on the way we talk about book uses and best practices. Similarly, if children are using e-books and print books for different purposes, it is possible that pitting e-books and print books against each other in experimental studies is not the best way to understand their benefits and detriments for children.

#### ***4.1 Limitations and Future Directions***

This study was a first pass at exploring the different uses and preferences for children's e-books. Although MTurk provided us with a large sample, we recognize that the demographics of this study are not nationally representative. As a function of online crowdsourcing, the quality of the data is another potential limitation. Though it is impossible to know whether all responses were answered truthfully, our survey used prescreening and discrete quality control questions to filter out inappropriate and low quality data. Nonetheless, this method resulted in a much larger and somewhat more diverse sample than we would typically obtain in our typical convenience sample. Future research should utilize converging methods to compare large survey studies such as this one to small, more in-depth interviews and observational studies.

## 5 Conclusion

Historically, print books have been viewed as the gold standard for children's literacy and learning (Bus et al. 1995), but this study suggests that parents predominantly perceive *e-books* for learning purposes as compared to print books. However, print books are considered very important for familial bonding, while e-books are viewed as appropriate for children's alone time. Based on this knowledge, it is time for the field to turn the page on the way e-books and print books are discussed and researched. As an alternative to the classic e-book vs. print book debate, our findings suggest that parents may perceive these tools as different entities with different purposes, rather than comparing them for singular purposes. Future research could aim to address the individual concerns and strengthen the separate roles of e-books and print books.

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