Parents' mobile technology adoption influences on elementary children's use

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Abstract

Purpose – With a high rate of mobile technology ownership in the home, it is unknown how parents' behavioral intention influences mobile technology adoption and children's informal use to support reading. The purpose of this paper is to identify 120 parents' intentions to adopt mobile technology and gather in-depth perceptions about mobile technology adoption with a smaller subset of 13 parents.

Design/methodology/approach – The unified theory of acceptance and use of technology adoption model and the ecological systems theory help explain the interconnections of the child's home and school on mobile technology intentions and use behavior. A mixed-method explanatory research design obtained behavioral intention scores from a parent survey and individual interviews explained intention scores and depth of perceptions. **Findings** – Parents' behavioral intention scores show, on average, parents agree with using mobile technology to help their child read in the home. Behavioral intention concerns are influenced by children's individual experience with technology: reluctant users prioritize media-safe education; indifferent users perceive technology as entertainment and desire a balance of text mediums; eager users are influenced socially and recognize interactive and individual affordances when reading with technology.

Research limitations/implications – Knowing that parents' behavioral intentions vary based on their individual concerns, transparency between parents and teachers about parents' concerns and children's mobile technology use in the home can strengthen children's mobile learning opportunities between home and school. **Originality/value** – Data were collected from 46 classrooms between two K-5 elementary schools in the southeastern USA, which offers a unique glimpse into technology adoption behavior in two different communities.

Keywords Mobile technology, Behavioral intention, Informal learning, Reading, Elementary children, Parent perceptions

Paper type Research paper

1. Introduction

The addition of twenty-first century mobile technologies, such as smartphones and tablets, have revolutionized how parents support their child's reading development in the home. However, despite a seven-year span since the iPad and nearly a decade since smartphones were released, we currently know very little about the decision-making process that a parent of a young child faces when considering using these mobile technologies as an academic support tool. To address this gap in knowledge of how mobile technology is adopted to support reading development in the home, this study examined how parents' behavioral intention to adopt mobile technology compared to parents' explanations of their perceptions about their elementary child's use of technology. In this study, behavioral intention is a measure of a parent's likelihood to adopt mobile technology to help their child read in the home.

Past research has explored children's mobile technology use as a formal learning support tool in the classroom (Toppel, 2014) and examined ownership of mobile devices in the national context (Rideout and Katz, 2016). Recent national research reports highlight expansive and rapid technology ownership in children's homes. One large-scale national survey of 1,191 parents with children aged 6-13 found that 91 percent own a mobile device, such as a tablet or smartphone (Rideout and Katz, 2016). This finding demonstrates rapid growth in technology adoption since the 2013 US Current Population Survey reported that 64 percent owned a tablet in the home (File and Ryan, 2014).

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Since the spotlight on technology ownership in the home has been primarily conducted by large national studies, this study targeted parents from two local communities to comprehend individual technology adoption more closely. While national research presents helpful technology ownership statistics, this study provides an in-depth investigation of parents' technology adoption decisions. Further research on the development of today's "mobile kids" (Shuler, 2009, p. 33) is needed, particularly because "technology will continue to transform teaching" (Dew, 2010, p. 47). It is prudent that the school builds on students' existing knowledge (Faires *et al.*, 2000). Therefore, an understanding of how and why technology is adopted and used in the home can help improve technology integration strategies by parents and teachers.

Given the ubiquity of mobile devices in children's homes, the use of mobile technology to support children reading in the home is an area of concern and interest to parents, teachers, and schools. In the following review of literature, parents' perceptions about children reading with mobile technology are examined, followed by a review of the research on children's mobile technology use to develop reading skills.

1.1 *Parents' perceptions about children reading with mobile technology*

An examination of parent perceptions of children reading with mobile technology can offer insight into parents' behavioral intention behavior. One survey of 104 parents found that approximately 25 percent expressed concerns that their child's tablet use could lead to overuse and addictive behavior, which could result in less time spent reading print books (Petkovski, 2014).

Parents' reasons for why they permit their child to use mobile technology in the home have interesting implications for how children may perceive the purpose of mobile technology. Petkovski's (2014) study, as reported elsewhere (Wood *et al.*, 2016), also investigated parents' rationales for introducing technology, such as a computer or tablet to their child, and found children primarily use tablets for entertainment. Based on the study's finding that children use mobile technology primarily for entertainment, it is not surprising that the most popular apps children use in the home are not literacy or e-book apps, but gaming apps (Chiong and Shuler, 2010; Rideout, 2013).

A recent national study identified parent concerns when their child used technology and the internet in the home (Rideout and Katz, 2016). Of the 96 percent of children 6-9 years old reportedly using a desktop or laptop to access the internet, parents reported half played educational games. Parents' greatest concerns about their child's technology use were as follows: 49 percent of parents worry about inappropriate content online; 47 percent believed computers and devices help children learn important skills; 45 percent reported the internet exposes children to important new ideas and information.

Despite previous findings that parents have hesitations about children using mobile technology (Petkovski, 2014), 80 percent of parents believed educational quality was improved when their child used technology (Rideout and Katz, 2016). The same study also found parents' primary reason to purchase a laptop and tablet was to support their child's education. These parents believed mobile technology could be a learning tool used to develop their child's reading and academic skills (Rideout and Katz, 2016). Although parents' express concerns when their child uses technology, parents permit children to use technology for learning, and further research is needed to identify and alleviate their concerns.

1.2 *Children reading with mobile technology*

Very few research studies have examined children reading with mobile technology in the home. Some researchers have revealed children's screen time, which can provide interesting insight into how children's interest in using technology has grown rapidly over the past decade.

An early study on children's screen time found 10 percent of the 329 (five-to-six-year-old children) read an electronic book for 47 minutes a day (Vandewater *et al.*, 2007). Using data from a 2011 Common Sense Media national survey of over 2,000 pre-school and elementary children, 69 percent of children had access to a smartphone and were using it on average for 13 minutes per day, meanwhile 40 percent of children had access to a tablet and were using it on average for 29 minutes daily (Lauricella *et al.*, 2015). A review of research on children using mobile technology for learning found home use of touchscreen tablets can improve children's emergent literacy skills (Neumann and Neumann, 2015).

This study acknowledges the national research that has shown parents and children are actively using mobile technology in the home, but rather than focusing on screen time, this study investigates how parents' perceptions influence mobile technology adoption in the home. It is important to acknowledge how parents and children read in the home because parents are children's first and primary teachers (Morris *et al.*, 1996). The limited research studies on children reading with mobile technology in the home have compared parents and children reading together with mobile technology and print books (Korat and Or, 2010; Parish-Morris *et al.*, 2013). However, the focus was on discourse initiatives, where parents initiated more negative discourse when their child read with mobile technology. These intervention-based studies also lacked an authentic inquiry into how children read with mobile technology. One case study of children reading in the home revealed how one parent and her 33-month-old daughter jointly created a personalized story using the Our Story app on the iPad. This investigation of the parent and child reading together on an iPad found the reading exchange highly interactive, where "the child was physically manipulating the iPad, listening to the recorded mother's voice while pointing with her finger to figures depicted in the picture" (Kucirkova *et al.*, 2013, p. 119).

With limited formal research into how parents permit their children to use mobile technology to support reading in the home, explorations of children's mobile technology use to support informal reading can provide further direction to help children learn with mobile technology. In a seven-week study of four and five-year-old children using mobile technology in the pre-school setting, iPads were explored to reveal their usefulness to facilitate reading, writing, speaking, and listening skills (Beschorner and Hutchison, 2013). As a result, researchers found children could read app icons demonstrated by their independent app navigation. In addition to successful navigation, children used apps to build their literacy skills: Doodle Buddy and Drawing Pad apps enabled students to write letters and short messages; iTouch books allowed children to listen to stories and retell and record their own version; Toy Story Digital Story app highlighted text as it read the story and permitted children to turn the page at their own pace; I Like Books allowed children to digitally record their own stories and add text and pictures; Magnetic ABCs enabled children to collaboratively construct words using digital magnetic letters.

In a year-long exploration using 1:1 iPads in the kindergarten classroom, Toppel (2014) sought to improve her students' reading achievement and reflected on a "journey filled with challenges, frustrations, excitement, and amazement" (p. 2). In this exploration of iPad integration, the discussion centered on student engagement, initiative, and self-direction using iPads. Students achieved a customized learning experience with iPads when given the opportunity to explore, "although they are young, our students continue to impress us with their mastery of iPad navigation, their creative projects, and their enthusiasm for opportunities to express themselves through customization of their work" (Toppel, 2014, p. 10).

This literature review provides evidence that mobile technology can scaffold student learning, yet the informal context of children reading with mobile technology remains underexplored. Following a review of literacy learning with technology, Burnett (2010) called for more exploratory research in how children use technology. This study seeks to contribute to

this paucity of research by unveiling an in-depth analysis of parents' perceptions pertaining to behavioral intention to adopt mobile technology and how parents support their child's reading development using mobile technology in the home.

1.3 Theoretical framework

Together, the ecological systems theory (Bronfenbrenner, 1979) and the unified theory of acceptance and use of technology adoption model (UTAUT; Venkatesh *et al.*, 2003) explain how behavioral intention and use is influenced by the contexts of children learning to read with mobile technology in the home and school (Figure 1).

Bronfenbrenner (1979) developed the ecological systems theory to explain the relationship between what is happening at the individual level (e.g. home) and the interactions a person encounters in other contexts (e.g. school). Within this theory, child development is viewed under the contexts and connections of family, classroom, and community. This theory consists of five layers: microsystem, mesosystem, exosystem, macrosystem, and chronosystem; the first two layers, microsystem and mesosystem, are most appropriate to explain the present study. The microsystem refers to a person's immediate setting, such as the home or classroom (Bronfenbrenner, 1979). Mesosystem is the interconnections among settings, such as the relationship of school and home on a child's reading development (Bronfenbrenner, 1979). The interconnectivity between the microsystem and mesosystem provides a lens to understand how parents' decision to support their child reading in the home with mobile technology is influenced by what the parent believes is best for their child, coupled with recommendations from their child's school, teacher, and societal influences.

UTAUT is a comprehensive technology adoption model used to explain an individual's behavioral intention to adopt an innovation (Venkatesh *et al.*, 2003). UTAUT contains four adoption models and four social and organizational learning theories and seeks to understand how an individual will make decisions about an innovation (e.g. mobile technology adoption). Four independent variables impact the dependent variable, behavioral intention: performance expectancy; effort expectancy; facilitating conditions; and social influence. Behavioral intention, the focus of this study, is defined by Venkatesh *et al.* (2003) as the likelihood of performing the target behavior; this study defines behavioral intention as the extent parents would adopt mobile technology to help their child learn to read in the home. This study is one of the first to use UTAUT to identify how parents adopt a technology for their child. Since UTAUT's comprehensive design has successfully explained nearly 70 percent of the variance in user intentions compared to 40 percent accuracy using the technology acceptance model (Venkatesh and Davis, 2000), the use of a technology model framework can help identify specific barriers to parents' technology adoption.

1.4 Research question

Under the framework of the child's microsystem and mesosystem (Bronfenbrenner, 1979) and parents' behavioral intention to adopt mobile technology to support children reading in the home (Venkatesh *et al.*, 2003), the following research question was addressed:

RQ1. How do parents' behavioral intention to adopt mobile technology to help their child read in the home compare to their explained perceptions of technology adoption and their child's technology use?

Figure 1.
Theoretical framework

2. Method

2.1 Participants

Participants were parents of elementary children from 46 K-5 classrooms within two schools located about 100 miles apart from each other in the southeastern USA. School 1, a charter school, operated under the public-school district and was a choice school for parents to send their children. School 2, a developmental research school associated with a flagship university, required parents to submit an application to enroll their child; acceptance is based on gender, race/ethnic origin, family income, exceptional student status, and academic achievement, with demographics representative of the state where it is located. Minority school representation at school 1 was 35 percent compared to 52 percent at school 2 (minority was defined in each school improvement plan as “other than Caucasian”).

2.2 Data collection

A sequential mixed-method explanatory design (Creswell, 2013) was used to first identify behavioral intention scores, followed by in-depth individual parent interviews (Table I).

Originally designed to measure an individual’s technology acceptance within the management information system environment, survey development included the adaptation of UTAUT’s (Venkatesh *et al.*, 2003) behavioral construct items to the context of this study. For example, one of the original behavioral intention items “I intend to use the system in the next < n > months” was adapted to “I intend on having my child use portable technology applications at home to help with learning to read in the next 6 months.”

Face and content validity techniques – six cognitive interviews with parents like those in the study and five expert reviewers – refined the survey. Additionally, the adapted survey items were validated by one of the original survey developers, Venkatesh. The survey was electronically distributed by teachers to parents of children within 46 elementary classrooms at two schools. The behavioral intention construct contained three items, measured by a Likert scale ranging from 1 to 7 (1 – strongly disagree to 7 – strongly agree), for a total sum score range of 3-21. Following survey completion, parents willing to be contacted for an interview provided their contact information.

To carefully select interview participants with a broad range of behavioral intentions, interview participants were chosen who represented a span of behavioral intention sum scores. Attempts were made to interview equal parent representation from both schools and parents with varying demographics. To inform the design of interview questions, Patton’s (2002) semi-structured interview protocols were developed for each parent interview, based on each parent’s behavioral intention response items. For example, if a parent indicated they strongly disagreed with the intention to adopt mobile technology to help their child learn to read in the home, the question on their interview protocol asked, “please explain the reasons you don’t intend on helping your child read using mobile technology.”

Table I.
Stages of the
mixed-method
research design

Stage	Method	Sampling regime	Sample size	Rationale
1	Survey	Parents of children from 46 classrooms at two K-5 elementary schools	120	To determine behavioral intention, construct sum score of mobile technology adoption to help their child learn to read in the home; 3 items: sums ranged from 3 to 21
2	Interviews	Purposive sampling based on survey response behavioral outcome score and broad demographics representation	13	To examine views in depth about using mobile technology to support their child’s reading development in the home. The sample represented a range of behavioral intentions and varying demographics

2.3 Data analysis

The behavioral intention construct from the survey was analyzed using descriptive statistics; means and standard deviations were reported for each individual item and for the overall construct score.

Braun and Clarke's (2006) thematic analysis was used to engage in a five-phase inductive analysis of transcribed interview data. Thematic analysis is a method of examining data for emergent themes, which is a recursive process of thematic coding and analysis where researchers engage in "searching across a data set [...] to find repeated patterns of meaning" (Braun and Clarke, 2006, p. 15). The following narrative questions were asked throughout the analysis: "What does this theme mean?"; "What are the assumptions underpinning it?"; "What are the implications of this theme?"; "What conditions are likely to have given rise to it?"; "Why do people talk about this thing in this particular way?" (Braun and Clarke, 2006, p. 24).

During phase 1 of thematic analysis, the qualitative dataset was divided into the three levels of behavioral intention, reluctant, indifferent, eager, as measured by their overall mean score. During the first reading of the data set, researcher impressions, thoughts, and preliminary interpretations were noted. Following this initial reading, phase 2 consisted of rereading each individual interview, which allowed for searching across each individual interview to identify any repeated patterns and begin generating a list of codes (Braun and Clarke, 2006). Initial codes included children's mobile technology use, children's mobile technology access, media-safe use, school support, perceptions of other parents, and effort expectancy. From this analysis of repeated meanings, phase 3 included questioning the meaning of each pattern and searching for underlying assumptions.

Phase 4 of thematic analysis included delving back into the data set to determine whether all data fit within the 16 initial coded domains, and whether new domains may be needed. The initial list of 16 codes was narrowed by questioning the implications of the identified themes and inquiring about the motives that led parents to realizing the role of mobile technology to support their child's reading development. This deeper analysis resulted in the creation of five key themes: one theme related to reluctant users, two themes pertaining to indifferent users, and two themes to depict eager users. Following the identification of five themes, phase 5 consisted of color-coding the data set to represent the identified themes. Phase 6 served to ensure data were representative of each emergent theme.

3. Results

3.1 Survey

The framework of UTAUT (Venkatesh *et al.*, 2003) and its ability to measure technology adoption concerns helped identify initial parent perceptions about adopting mobile technology to support their child's reading development in the home. Survey responses were limited to one parent per household, with responses pertaining to the youngest elementary-aged child. Also, there is no way of knowing if every teacher distributed the survey to parents. For these reasons, it is difficult to know the exact response rate. Of the 120 survey respondents, 81 percent were female, 14 percent were aged 25-34, 86 percent were 35 and older, 19 percent received free/reduced lunch, 69 percent were Caucasian, and 31 percent held a graduate degree or higher. Regarding the children, 57 percent were boys, 65 percent were in K-2, and 34 percent were the first-born child (Table II).

The behavioral intention construct from the survey contained three items, assessed using a Likert scale from 1 to 7 (1-strongly disagree to 7-strongly agree). For example, item 1 asked parents to respond to the extent, "I intend on having my child use mobile technology applications at-home to help with learning to read in the next 6 months" ($M = 5.04$). On a scale of 3-21, the overall construct sum score was 15.03, which identified,

Table II.
Survey demographics

Demographics	Percentage
<i>Parent gender</i>	
Female	81.00
<i>Child gender</i>	
Female	42.59
<i>Child grade</i>	
K	18.33
1	31.67
2	15
3	15.83
4	5.83
5	13.33
First-born child	34.26
<i>Race</i>	
African-American	10.19
Asian/Pacific Islander	3.70
Caucasian/Non-Hispanic	68.52
Hispanic	12.96
Multi-ethnic	4.63
<i>Age range</i>	
25-34	13.89
35-44	64.81
45-54	19.44
65+	1.85
<i>Education</i>	
High school diploma/GED	3.70
Some college	15.74
Associates	12.96
Bachelor's	29.63
Some graduate work	7.41
Master's	22.22
Doctoral	7.41
Other	0.93
<i>SES</i>	
Free/reduced lunch	19.44
<i>Technology adoption decision maker</i>	
Primary	37.00
Joint	62.96

on average, whether parents agree they would use mobile technology to help their child read in the home. The standardized Cronbach's α was reported as 0.94, which demonstrates consistency among the items within the construct. A comparison of total survey response statistics to interview participants' means and standard deviation scores are reported in Table III.

Based on the 120 total survey responses, 13 percent of parents self-identified as reluctant, 20 percent as indifferent, and 67 percent as eager. Using the behavioral intention survey response scores, three categorical levels of behavioral intention to adopt mobile technology to help their child learn to read were established based on the sum score of the behavioral intention construct, which ranged from 3 to 21: those with scores of 3-9 were identified as reluctant users; 10-14 were indifferent users; and 15-21 were eager users.

Behavioral intention construct			Parents' mobile technology adoption
	<i>M</i>	<i>SD</i>	
BI1: I intend on having my child use mobile technology applications at home to help with learning to read in the next 6 months	5.04	1.80	
BI2: I predict I would have my child use mobile technology applications at home to help with learning to read in the next 6 months	5.02	1.70	
BI3: I plan to have my child use mobile technology applications at home to help with learning to learning to read in the next 6 months	5.01	1.78	
BI overall	15.03	4.98	
Note: <i>n</i> = 120			8

Table III.
Descriptive statistics

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Descriptive statistics

3.2 Interviews

Following the analysis of behavioral construct scores, 13 individual interviews were conducted with the same parent participants from the survey responses. All attempts were made to obtain an equal number of interview participants from each user category, but with an unequal distribution of levels of intention; interview participants included three parents who self-identified as reluctant, five indifferent, and five eager (Table IV).

Of the interview participants, 12 were female, 5 were younger than 35 years, 5 received free/reduced lunch, 8 were Caucasian, and 2 held a graduate degree or higher; 6 parents had a daughter, 7 had a child in grades K-2, and 4 children were first born (Table V).

Following the identification of parent perceptions concerning mobile technology adoption using UTAUT (Venkatesh *et al.*, 2003), the ecological systems theory (Bronfenbrenner, 1979) helped explain that parent concerns about technology adoption resulted from a complex relationship between how the parent should support their child academically compared to the role of the school to use mobile technology as a learning tool. Interview data revealed parents' mobile technology adoption intentions could be explained by their individual concerns, social pressure from the child's school, and how their child reacted to using the technology.

	BI sum score ^a	Child grade level	School	Child gender	Parent age	Parent ethnicity
<i>Reluctant</i>						
Yolanda	3	4th	Two	Girl	35-44	Black
Jeanne	3	5th	Two	Girl	45-54	Caucasian
Stephanie	3	4th	One	Boy	35-44	Caucasian
<i>Indifferent</i>						
Susan	10	3rd	Two	Boy	35-44	Caucasian
Mandy	12	K	One	Boy	35-44	Caucasian
Trisha	12	1st	Two	Boy	25-34	Caucasian
Nelda	13	1st	One	Boy	25-34	Latina
Margarita	14	1st	One	Boy	25-34	Latina
<i>Eager</i>						
Akirah	20	K	Two	Girl	25-34	Black
Guadalupe	20	3rd	One	Girl	35-44	Latina
Tara	21	1st	One	Girl	35-44	Caucasian
Carrie	21	1st	One	Boy	25-34	Caucasian
Jake	21	3rd	One	Girl	45-54	Caucasian

Notes: *n* = 13. ^aSum scores were obtained from the three-item overall construct score for behavioral intention using a Likert scale of 1-7; sum scores ranged from 3-21

Table IV.
Parent's behavioral intention profiles

Table V.
Interview
demographics

Demographics	Percentage
Female	92.31
<i>Child gender</i>	
Female	46.15
<i>Child grade</i>	
K	15.38
1	38.46
3	23.08
4	15.38
5	7.70
First-born child	30.77
<i>Race</i>	
African-American	15.38
Caucasian/Non-Hispanic	61.54
Hispanic	23.08
<i>Age range</i>	
25-34	38.46
35-44	46.15
45-54	15.38
<i>Education</i>	
Some college	15.38
Associates	15.38
Bachelor's	38.46
Some graduate work	15.38
Master's	15.38
<i>SES</i>	
Free/reduced lunch	38.46
<i>Technology adoption decision maker</i>	
Primary	53.85
Joint	46.15

In the following section, parents (pseudonyms used) are categorized by their behavioral intention and a theme or themes that explains their reasoning for their behavioral intention user category to adopt mobile technology. Reluctant users prioritize media-safe education. Indifferent users perceive technology as entertainment and desire a balance of text mediums. Eager users are influenced socially to adopt mobile technology and recognize interactive individual affordances offered by reading with mobile technology.

Reluctant users prioritize media-safe education. Reluctant users resist technology adoption due to high concerns with media-safe technology use. Yolanda, mom of a fourth-grade girl at school 2, explained, “we don’t do Facebook, Instagram, none of that stuff [...] it’s too dangerous.” She expanded why she does not permit her daughter to access technology on her own because “that fear is always there that she’s gonna be on the Internet and she might type in a wrong letter, end up on a porn site [...] there’s no telling what she’s gonna be exposed to on the Internet.”

Jeanne, mom of a fifth-grade girl at school 2, said “we limit our screen time [...] we’re not just gonna use technology just for technology’s sake.” When Jeanne wants to locate reading with technology recommendations, she shared her technique, “I find online, hear, and read summaries, and check out Common Sense Media for ones I am a little unsure of, to see if they would be of interest to my kids.”

The last parent who identified as reluctant behavioral intention, Stephanie, mom of a fourth-grade boy at school 1, said her son “doesn’t have free range to any sort of device [...] he’s too young for that stuff.” Instead of allowing her son to access mobile technology in privacy, she has “set up stations now, out in our kitchen area, because I’m scared.” Stephanie feels strongly that technology use must be fostered with media-safe education, suggesting that teachers “educate parents on how to use some of this technology, and I think that there should be some sort of class or something that all the students go to [...] about computer safety, because kids don’t know.”

Indifferent users perceive technology as entertainment and desire a balance of text mediums. Susan, mom of a third-grade boy at school 2, perceives educational technology as entertainment. To demonstrate her thinking, “the LeapPad Explorer [...] the kids are just playing on it like an electronic device [...] it’s probably more entertainment.” When Trisha, mom of a first-grade boy at school 2, was asked about the devices her child is using to learn, she also portrays the LeapPad as entertainment, “he’s got like a Spanish little word blocks game, these games where they teach him math and phonics [...] it’s a whole bunch of little learning games.” Nelda, parent of a first-grade boy at school 1, recognizes “the technology makes it very playful, as if it’s more of a game.” Margarita, parent of a first-grade boy at school 1, admits she will “sometimes use it [technology] as a reward” for her child’s good behavior.

Indifferent users also believed they should help their child read with a balance of text mediums. For example, Nelda lets her son read “a story on the phone or the tablet, or an actual book.” Trisha adds, “we didn’t learn from this little game [...] but if the apps help, I have no problem using them.” Trisha’s son “also uses traditional books because I’m old-fashioned [...] we learned from books.” Mandy, mom of a kindergarten boy at school 1, believes in a “happy medium” when it comes to a balance of text, explaining “I’m not against technology, but I just don’t know that kids need it as much as some people say they do. I think it’s really important that kids have books in their hands.” Margarita also provides her son with access to both text mediums, “when they have book fairs and whatnot, I still get the traditional style for him. However, he does have a Kindle.” She explains that her desire for a balance is because she is “still trying to stay old-school, because when we were younger we didn’t have that stuff, and it is very consuming.”

Eager users are influenced socially to adopt mobile technology and recognize interactive and individual affordances offered by reading with mobile technology. Eager users are socially influenced to use technology for reading and perceive mobile technology a convenient tool to customize the reading experience. Eager users emphasized mobile technology adoption was influenced by the child’s school and broader parent community. In response to who is influencing her child to read with mobile technology, Tara, mom of a first-grade girl at school 1 said, “the academic machine of funding is pushing it because they’re looking at cost. It’s a lot cheaper to buy each kid an accessible device at \$200 than to buy each kid eight textbooks that cost \$100 apiece.” For Guadalupe, mom of a third-grade girl at school 1, she recognizes “they teach technology. Even from kindergarten, they’re teaching little kids how to use technology, so it really made me aware of that. We’re in that technological age.” Akirah, mom of a kindergarten girl at school 2, was a bit surprised when her daughter’s school supply list requested earphones for her child, until she recognized that “you needed earphones because we’re gonna have a lot of technology and they’re gonna be on the computer. So I had to start thinking, everything is based on technology [...] technology is definitely gonna be in their learning curriculum.”

Carrie, mom of a first-grade boy also at school 1, noticed the importance of providing her child with technology devices when her son entered kindergarten and “went up to the computer screen and was punching it like it was gonna do something.” Despite her child

being comfortable with using mobile technology, there were school pressures to learn to use their technology, “we actually had to get a desktop computer because he couldn’t do the assessments.” Carrie admits how this social pressure made her feel, “I feel like we’re pushing them into things way younger than we should be, but that’s just the reality of the world we live in.” Feeling little choice in the ability to make technology adoption decisions, “we can’t not have them [tablets, computers] because then they won’t be able to take tests and do things they need to do. So, it’s a necessary evil.”

Eager users expressed that reading with mobile technology was an interactive experience that was attractive to their child. School 1 was participating in a readathon, and both Guadalupe and Jake discussed the interactive affordances offered by this digitally collaborative literacy experience. Guadalupe noted “they love interacting that they get to write what their favorite book is, and that they’re writing a synopsis and then they’re chatting with their friends. So I love that they’re applying, not just that they’re reading online but that they’re engaging online.” Jake, dad of a third-grade girl at school 1, added “she’s really understanding the interaction that she can do on the iPad as opposed to reading a book.” For example, she can “comment, highlight certain portions,” and then “answer questions about the story, and look at other kids in their class and what they’re reading and comment on their comments.”

Last, eager users identified reading with mobile technology offers individual learning advantages. Akirah believes “technology is a part of her [daughter’s] learning style.” Guadalupe said, “I love the digital text in the sense that it’s interactive. So not only do they get to read, but they can also go ahead and just evaluate their comprehension, and everything right there immediately.” To demonstrate, “AR [Accelerated Reader] is a perfect example. They could read a book and then do the quiz just to see how well they comprehended it.” Another example, “with Istation and stuff, they can get ahead of their peers and it’s catered to what their level is to challenge them.” Tara also explains a major advantage to reading with mobile technology, “in terms of independent learning, the screen is much more effective because it colors the word yellow and it says the word out loud and it’s helping her to recognize words that she might not otherwise ask for help with.”

4. Discussion

In response to high mobile technology ownership in children’s homes (Rideout and Katz, 2016) and Burnett’s (2010) call for exploratory research to explain how children use educational technology within informal contexts, this study gathered survey and interview data from 120 parents within two elementary schools to compare parents’ behavioral intention to their explained perceptions that influence mobile technology adoption and how these perceptions influence their child’s use of such devices in the home as a supportive reading tool. This study’s finding that, on average, parents agree they should adopt mobile technology to help their child read in the home contributes to the national research that has demonstrated nearly all homes with children have adopted mobile technology in the home (Rideout and Katz, 2016). Due to the sequential design of this study, interview data provided in-depth explanations about behavioral intentions and use decisions in the home. An examination of technology adoption behavior was obtained by distributing an adapted version of the behavioral intention construct from the UTAUT survey (Venkatesh *et al.*, 2003), followed by parent explanations of perceptions and technology use behavior as explained by the influences of the child’s microsystem and macrosystem (Bronfenbrenner, 1979).

Interestingly, results of this study demonstrate various levels of behavioral intentions to adopt technology can be best explained by specific concerns within each level of behavioral intention (e.g. reluctant, indifferent, eager). For example, this study found that parents who

were unwilling to adopt mobile technology to support their child's reading development in the home preferred not to adopt mobile technology because they had concerns about their child's media-safe technology use. This finding supports prior research which argued for the importance of educating parents with media-safe technology use in the home (Rideout, 2014). These reluctant parents expressed fears of their child using technology as a tool for reading, worried they could become addicted to the technology or encounter a negative experience with social media.

For the indifferent parents, those who were unsure about using mobile technology to help their child read in the home, they generally perceived reading with mobile technology as entertainment or reward. Parents of boys described their son as having a strong affinity toward playing games with mobile technology. Parents noted their son would enthusiastically use educational apps, but that their son perceived the apps as a form of entertainment. Since children of indifferent parent user intentions were drawn toward technology for its games, these parents were hesitant to allow access to the device out of fear their child would spend too much time playing games. Perhaps because indifferent users perceive reading with mobile technology as entertainment, these parents assert their child should read using a balance of text mediums.

These technology users have committed to technology adoption and use in the home, and recognize numerous benefits for how technology have extended and supported their child's reading development. This social influence to adopt mobile technology appeared to stem from their child's school and societal pressure to adopt mobile technology to succeed academically. Since these parents had already committed to technology adoption in the home, they shared benefits of the interactive nature of technology apps and how their child benefitted from the ability to learn at their own pace while using technology. These findings justify the importance of the role of the school to build on student's existing knowledge (Faires *et al.*, 2000), to inquire with parents about children's technology use in the home.

5. Implications

This study provides evidence that behavioral intention influences how parents permit their child to access and use mobile technology as a reading support tool in the home. An examination of reluctant, indifferent, and eager intention behaviors revealed distinct concerns within each category of technology user. Equipped with an understanding of how parents' behavioral intentions vary in accordance with their individual concerns, findings could be used to help teachers, schools, and districts work with parents of elementary-age children to support meaningful educational technology use and adoption around mobile learning.

A collaborative partnership between parents and the school understanding parents' perceptions of mobile technology can improve students' mobile learning practices. For example, if a teacher is aware that some parents and children desire media-safe educational training and resources, the teacher can provide recommendations from trusted online sites such as Common Sense Media, in addition to offering a teacher-led hands-on media-safe workshop. Regarding how some parents and children perceive apps as entertainment, it could benefit teacher planning to be cognizant of this perception when considering which apps to include in the digital curriculum. By being transparent about mobile technology use in the home and school, teachers and parents can collaborate to deepen learning opportunities afforded by mobile technology. Additional research should be conducted on this topic of parents' supporting children academically with mobile technology in the home, and this study acts as a starting point to understanding how parent perceptions influence children's use of mobile technology as a reading support tool in the home.

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