

## “What I Love about Technology”: Older Adults and Mobile Communication Technologies

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### Abstract

In a series of in-depth interviews, ten older adults described their use and experience with mobile technologies (e.g., E-readers and tablets). The results reveal that while older adults may not be leaders in new technology adoption, they do utilize mobile technology when they find it useful. The participants expressed both satisfaction and some frustration with their mobile devices. Participants suggested that the devices allowed them to partake in behaviors they might not be able to otherwise enjoy for a variety of physical and social reasons.

**Keywords:** mobile technology, older adults, technology acceptance

### 1. Introduction

As communication technology has become more mobile and people more connected, there continues to be discussions and concerns about the difference between so-called native and non-native users of digital media. The concern is often that older adults are not adopting digital, mobile technologies or that they do not know how to use them. There are many speculations about the reasons for this. Some have suggested that small screens and buttons (Hasan & Nasir, 2008) are difficult for older eyes and fingers to effectively use. Others have suggested that older adults have an inherent fear of new technologies (Roupa, Nikas, Gerasimou, Zafeiri, Giasyrani, Kazitori, & Sotiropoulou, 2010). In the current study, we sought to explore how older adults are using mobile technologies as well as to explore potential barriers for use and adoption.

#### 1.1 Mobile Media Use

Current technological developments have allowed for the consolidation of many traditional media channels (e.g. books, newspapers, television, and Internet) into portable, lightweight devices. There are now more American adults reading information on mobile devices than in traditional print. While earlier research established that older adults adopt new technology at slower rates than young adults (Olson, O'Brien, Rogers, & Charness, 2011), by April 2012, for the first time more than half (53%) of American adults aged 65 and older reported adopting online technology (i.e., Internet and e-mail) (Zickuhr & Madden, 2012). Data from the same time period demonstrates that E-reader/Tablet usage by older adults is increasing. Specifically, 18% of 18-to-29 year olds, 23% of 30-to-49 year olds, 16 % of 50-to-64 year olds, and 11% of adults over 64 years reported owning E-readers (Zickuhr & Madden, 2012). Similarly, as the access to E-books via mobile devices increased, university libraries saw E-books usage surpassed borrowing of printed books (Shen, 2011). This increase in digital reading experiences reflects not only the early adopters and the younger generation but a growth in usage across different generations. While most tablets can serve as E-readers with a downloaded app (i.e., Kindle), earlier research focused on interest and adoption of E-readers as a stand-alone technology. Prior research reported that a media user's awareness, interest, and adoption intention of E-readers was found to be negatively related to age of the respondent (Jung, Chan-Olmsted, Park, & Kim, 2012). Jung et al.'s results were consistent with Chi and Chadha (2011) who reported a negative relationship between digital media usage and age

Older adults report engaging in a limited range of Internet activities compared with younger adults. For example, social media usage has only recently been integrated into older adults' Internet use. Among adult Internet users, adults under 30 years old reported more than twice the social media use compared to adults older than 65 years old. (86% versus

34%) (Zickuhr & Madden, 2012). This trend is also found in consumers' purchase intentions with younger consumers reporting higher intentions to purchase new media devices. This has implications in other areas of social engagement such as political participation (Wei, 2012).

### *1.2 Technology Acceptance Model*

One potentially useful theoretical approach to explain why people adopt a new media technology is the Technological Acceptance Model (TAM) (Davis, 1989). TAM originally focused on two factors that were found to predict the likelihood of technology acceptance: perceived usefulness and the perceived ease of use. Early studies applying this model found that perceived usefulness was a stronger predictor than perceived ease of use. Over time other factors have been studied and introduced. In 2003, the Unified Theory of Acceptance and Use of Technology (UTAUT) was published (Venkatesh, Morris, Davis & Davis, 2003). This model amalgamates several other technology adoption models including: Theory of Reasoned Action, Innovation Diffusion Theory, and Social Cognitive Theory. Within the UTAUT framework, four factors that have been found to influence technology adoption. The factors are: 1) Performance expectancy or the how much individuals believe that using the technology will help him or her (Venkatesh et al, 2003); 2) Effort expectancy or the perceived ease of use associated with the technology (Venkatesh et al, 2003); 3) Social influence or the extent to which individuals perceive others feel it is important to use this particular technology (Venkatesh et al, 2003); and 4) Facilitating conditions or the extent to which individuals feel there is support to assist them in using the technology (Venkatesh et al, 2003).

### *1.3 Research Questions*

Based on the increasing usage of the Internet and mobile technologies, we identified a two-fold research question: 1) What do older adults like (or dislike) about mobile technologies such as E-readers and tablets? And, 2) How do these technologies fit into the media use of the older adult user? These questions will be addressed through the use of interviews which allow the participants to tell their own story about their relationship to mobile media.

The current study is an exploratory qualitative investigation and attempts to provide a description of the experience of older adults who are using mobile technologies. The study is an exploratory introduction into their experiences and differs from prior studies which have focused on adoption and use obstacles.

## **2. Methodology**

Given the nature of the research questions, the most appropriate methodology was personal interviews. Such a strategy allows participants to be able to use their own words to describe their experiences. The researchers were interested in talking to older adults who had prior experience using mobile technologies. Therefore, participation was restricted to older adults who owned and used an E-reader or tablet (e.g., Nook, Kindle, iPad) for at least 6 months. All the participants were recruited from a retirement community, which has a wide range of housing options ranging from detached homes to nursing home care. The staff at a retirement community assisted the researchers in identifying older adults who were using various mobile technologies. All the participants in the study were living independently in either their own home or apartment within the retirement community. The current study focused on older adults' use of tablets and E-readers – we did not include phones. It should be noted that none of the older adults in the study owned a smart phone at the time the interviews were conducted.

### *2.1 Research Design*

Ten structured interviews with probes were conducted at a retirement community over a two-week period in a suburban city located in the Midwestern region of the United States. Each interview lasted between 40 and 60 minutes. A pair of trained interviewers met the participants in the community hall of the retirement community. The conversations were audio recorded and later transcribed. The interviews included questions such as “(Please) tell me a story about how you use your E-reader or tablet”; and “How easy is it of you to use your E-reader or tablet?”

### *2.2 Participant Characteristics*

Nine women and one man between the ages of 69 to 89 years old were interviewed. Table 1 summarizes participants and their mobile technology ownership and usage.

Table 1. Summary of participants and Ereader and /or tablet usage.

Participant Number	Name*	Age	Sex	Type of Mobile Media	Length of Ownership	Daily Usage
1	Sue	69	Female	Nook color	7 months	45 minutes
2	Nancy	84	Female	Nook	12 months	Periodic
3	Joe	78	Male	IPad	6 months	Periodic
4	Carrie	78	Female	Nook	18 months	Periodic
5	Irene	89	Female	Kindle	9 months	More than 4 hours a day
6	Lisa	87	Female	IPad	48 months (4 years)	More than 4 hours a day
7	Mary	76	Female	Nook	9 months	2 hours
8	Tina	72	Female	Kindle fire	8 months	More than 4 hours a day
9	Rita	75	Female	Ipad2	18 months	2 hours
10	Bettie	81	Female	Playaway	36 months (3 years)	4 hours

Note: \* = Names are fictitious.

### 3. Analysis and Results

The interview data was transcribed and commonalities were identified. To establish validity, the commonalities reported here were identified independently by the two researchers who each read the notes taken by the interviewers, listened to the transcription, and identified themes. Firstly, the basic usage and description of the E-reader/tablet used are discussed. Secondly, the themes are presented and detailed. Lastly, the future research directions are outlined.

#### 3.1 Ownership of E-reader/Tablets

Six of the 10 participants received their E-reader or tablet as a gift or second hand from a family member (who had upgraded their own device). One participant received a tablet from a car dealership as an incentive gift for purchasing a car, and another was given her tablet as a reward for participating in a medical study. It is noteworthy that even though they desired to own a mobile device, most of the participants did not purchase the technology for themselves. However, one participant reported she did research and relied on consumer reports to help her choose which brand and model to purchase. This use of external expertise is consistent with prior research that older adults prefer to review as much information as possible about products prior to making a purchase (Campanelli, 1991). Four participants owned various versions of the Nook by Barnes and Noble, two participants owned a version of the Kindle, three participants owned Apple iPads, and other one participant used preloaded audio books from the library (i.e. Playaway). The average time of ownership was 17 months. Participants reported using their mobile devices on a daily basis, although daily use ranged from occasional use to 4 or more hours each day.

#### 3.2 Older Adults, Mobile Technologies, and UTAUT

Overall, the expectation of the technology for the current participants ran contrary findings of previous research. Of the participants interviewed none identified usability (Hasan & Nasir, 2008), fears of new technology (Roupa et al., 2010), low interest, awareness and adoption intentions (Jung, et al., 2012) as an unsolvable obstacle to adopt mobile media.

The advantages and disadvantages older adult participants reported are partially consistent with the Unified Theory of Acceptance and Use of Technology model (UTAUT) (Venkatesh et al, 2003). While the authors of the current study did not create interview questions based on the UTAUT, the resulting descriptions of E-reader and tablet use by the older adults interviewed can be grouped into four factors found in the model. The four factors are performance expectancy, effort expectancy, social influence and facilitating conditions. Each of these factors are discussed below.

#### 3.3 Performance Expectancy

Performance expectancy has been defined as the extent to which an individual feels using a communication technology will assist them in reaching a goal--either in a work setting or a personal achievement (Venkatesh et al, 2003). There are several performance expectancy factors reported by the older adults in the current study regarding their use of E-readers. Firstly, E-readers have convenient functions and portable sizes for older adults (This will be discussed in more detail below). Secondly, reading books was the identified by 7 of the 10 interviewees as most important function and the

reason for obtaining an E-reader. Sue said "I think we all use it for same thing, mainly reading books." Thirdly, the ability to adjust font size enhances the book reading environment for them. Overall, most participants reported being satisfied with their mobile device. The majority of the older adults in the study tended to focus on replacing traditional (non-digital media) with the mobile devices, and only few (3 of 10) utilized any additional functions related to Internet connection. However, this tendency seemed to be dependent on the types of mobile devices they own. Those who owned tablets were more highly involved in online activities compared with those with an E-reader without Wi-Fi capabilities. This result is consistent with concerns about lower levels of media use leading to older adults being less involved in political communication and participation (Wei, 2012).

The ability to connect to the Internet was an important feature to some participants. The participants with Internet access on their mobile device reported checking email and surfing the web as the most important features on their E-reader or tablet. Those participants reported that they use their mobile devices far more than their desktop computer. This was especially true for activities such as web searches, scheduling, and checking e-mail. Lisa said "Oh, I also buy things on mine, because it's hard to get to the stores."

Another participant reported that she loves her calendar on E-reader for scheduling. They all recommended more current model of E-readers because newer ones have many features that they felt other older adults would enjoy. The participants without Wi-Fi capability hope to upgrade to a model with Internet access in the future.

### 3.4 *Effort Expectancy*

Effort expectancy or ease of use was also discussed by the older adults in the study. Many of the participants reported that it took some time for them to learn how to use the features of their mobile device. There are several distinctive differences in mobile device use that distinguish older adults from other generations and which are consistent with previous research (Chi & Chandha, 2011; Wei, 2012). Even when participants have access to the Internet on their mobile device, there are some usability issues to be improved so that older adults feel more comfortable. Some participants reported usability issues--especially when comparing them to using traditional paper books. Mary said, "If touching [the screen] won't go fast enough for me, I click; because, it's a little bit faster."

The findings of the current study demonstrate that older adults are able to weigh the pros and cons of their current E-reader and the cost of new devices. Even though there was interest in some other features, such as larger screens, color screens and additional coverage of Internet access, there was not enough confidence that an upgraded E-reader is worth of the extra money. The participants were concerned about the heavier weight of the devices with larger screens. Additionally, there was concern about the ability to replicate behaviors they can do easily with non-digital technologies. In particular, there was concern about note taking or commenting on the text. Carrie noted: "I would be nice occasionally to be able to connect to the internet through this when I'm away from the home; I've got the Internet at home because I got a computer. But I have a group of friends we meet weekly at Starbucks, it's a book discussion group, there are two of us in the group of five who have E-book readers. And sometimes we get our books on our reader. And now the next book that we are going to study, I decided not to get it on my reader, because I don't know how to note and so forth, and I found the procedure flip back and forth when looking at for something in a regular book that it is flipping to here, so I chose to do my next book in a book form rather than electronic form."

#### 3.4.1 *Satisfaction*

Most participants described being satisfied with their E-reader's performance, especially when they use their E-reader for reading. However, when asked if they wanted to upgrade to a more current model, they agreed they would like upgraded features--especially to color screens. (It should be noted that the desire for color screens was not to watch movies or television programming but to see images in books.) Participants were concerned about the weight of the devices with larger screens. Many participants said they would not want to buy a more advanced E-reader because of the expense. Sue said "If you are gonna use it like a iPad it would need to be improved, but it'll have to be bigger, ... but I don't think it's worth of the extra money which is why I didn't go for an iPad." Participants were satisfied with the large screen televisions and high quality of surround sound of movies that local community center offers. There may be a social dimension to watching movies as well.

The participants identified other improvements they would like to see made easier, such as sharing E-books with other people. Two participants reported they tried this feature several times but were unsuccessful, and they never tried it again. Others were not aware that this feature was available to them. Some participants did not understand how to use the bookmarking and note taking options. Lastly, there was a desire for E-readers/mobile devices to be more customizable to their personal characteristics (i.e., touch pressure, font size, and color).

#### 3.4.2 *Usability*

Participants reported that they found their mobile devices to have convenient functions and to be a portable size. The

lightweight of the mobile device allows them to carry multiple books on the E-reader. All the participants with an E-reader reported it is much easier than carrying a large book or multiple books. They also reported using their mobile devices when they are away from home such as waiting for appointments or at the doctor's office. For example, Sue said "If I have to go an appointment then I have to sit and wait while I take the Nook because it's easier than owning a book. I do not check my emails it's not the most convenient thing to check e-mail."

All the participants reported trying to have an E-book on their E-reader at all times for when they have chance to read. Reading books was the most important function and the primary reason for obtaining an E-reader for most participants. Also, compared with paper books, E-readers are light weight and can mark the page where the reader has left off. Sue said "I've got a (paper) book on Margaret Thatcher that I would love to finish reading but it is 1200 or 1300 pages, and it is hard back, and it is heavy." The participants reported they liked being able to store several books at a time, which allowed them to choose the books they wanted to read at any time.

Another popular feature reported by the older adults was the ability to change the font size. Most participants reported needing to increase the font size on their E-reader so they could see the text. They reported not being able to read the text in standard sized books. One participant reported assisting friends in changing the font size to be larger so her friends could read using the E-reader. This led to her friend purchasing a mobile device. In fact, for some participants this was a primary reason for obtaining an E-reader. Carrie said "In fact is, my sight gets worse, I can get up, so the letters are look like about an inch, but it's easy to switch from one to the other, and I have it on the size now that I like, and I like to keep it that way, as long as I can.

Another issue discussed by some participants was some of the benefits of traditional paper books over E-books. Some participants enjoy writing comments or taking notes in the margins, and they did not know how to use the notes function on their E-reader. Several commented that when they are reading an E-book version of title for their book club, the page numbers are often different from the printed version which creates confusion and frustration. Participants consistently reported that the E-readers have usability issues over traditional paper books such as flipping pages, navigation, touch sensitivity, and page layout.

Some participants reported not liking features related with the touch screens of mobile devices. Specifically, the actions required to turn book pages forward and backward. This is a different motion than turning a physical book's page, which was something they could do mindlessly. A related issue is the sensitivity of the touch screen – especially for turning pages. Most of (7 of 10) participants complained about that touching to turn pages is not convenient nor accurate.

One of the participants was not able to use all the features she was interested in using because learning how to use it was hard for her. She believes that she is too old to learn new technology, and she gave up trying to learn. Instead, she uses her computer to send and read E-mails, to do Internet searches, and online shopping. On the other hand, she reported she really would like to be able to do the same things on her mobile device.

### 3.4.3 Differences between Mobile Devices

There were some dramatic differences between the participants who owned E-readers (e.g. Nooks and Kindles) and those who owned tablets (e.g. iPad and Kindle Fires). The participants with tablets reported utilizing them for far more than reading E-books. They reported second screen viewing and online shopping.

### 3.5 Facilitating Conditions

The degree to which an individual believes an "organizational and technical infrastructure exists to support use of the system or communication technology" (Venkatesh et al, 2003, p. 453). The interviewees valued the availability of face to face assistance. This finding is consistent with the conclusion in earlier studies that older adults more rely on the telephone as a way method of communication than younger adults (Dickenson & Hill, 2007), and it may be related to vision and hearing loss of older adults (Browning, 2002).

Some participants believe that an advantage of their owning a Nook over other types of devices is that they can get assistance from in-store helpers, and they value the availability of face to face assistance. They do not like dealing with somebody over the phone because they might not understand the problem. These seemed to participants feel that all technology can go bad. This sentiment was summed up by Sue, "If something went wrong, I can take it physically take it up to my E-reader company, otherwise you have to package it up and send it back. I didn't want to handle it.....I want it to be able to deal face to face with somebody when your technology goes bad." Other participants did report they received assistance with their mobile devices from librarians at their local library. Therefore, they value the linkages between offline and online environment of portable media.

### 3.5.1 Access to Features

An enhanced book reading environment was reported as a large advantage of owning a mobile device. Participants explained they enjoyed being able to browse titles and genres of books. For several participants this was extremely important in part because it allowed them other options than having to venture to the library. Carrie said "I always love to go to the book stores to browse books, now I can do that [on my E-reader]."

### 3.6 Social Influence

Venkatesh, et al. (2003) defined social influence as the extent to which a person perceives that important others believe he or she should use a new communication technology. We saw this in how many of the participants told us they had obtained their E-reader or tablet as a gift or a hand-me-down from a family member.

#### 3.6.1 Family & Friends

Older adults showed reliance on younger family members to set up the technology and for updating E-books and other content (Browning, 2002). Five of the 10 participants reported that did not purchase their own E-books but had received them from family members who shared a copy with them. All the interviewees referred to receiving assistance from friends and family: "[My] grandkids teach me how to use it" or "my family bought me the E-reader, so they pushed me into it" and "My daughter has the same E-reader, and [she] is my source of information. Further, Rita said, "It takes time, yeah, my grandchildren come in 'all you do is push this Nanna, this one Nanna, that one Nanna"

Participants with tablets reported using social media to connect with family members. Approximately half of the interviewees expressed an opinion that older adults had to adjust and adopt newer communication technologies (e.g., Facebook) so they could have contact with younger family members. Rita reported she "would not know what was going on with her grandchildren if she was not on Facebook."

## 4. Discussion Summary

Overall, the older adults interviewed reported that they expected mobile communication technologies would be beneficial. They reported their positive outcome of using mobile technologies. Specifically the technologies assisted them in activities they were already engaged in doing. E-readers allow them to enlarge the text, and they help them to obtain books online when getting to the library branches is becoming more challenging. They also reported experiencing some challenges. Some issues they said they had anticipated and some of them they said they did not (touch pad sensitivity issues in "turning" book pages). However, the older adults we interviewed pushed through the challenges and had been using their mobile devices for at least several months. All were enthusiastic about using their mobile devices. Nancy said "What I love about technology is... you can just go to your computer and Google it and get the information you want immediately, you don't have to go to the library to do it, you don't have to have all those books like we always had."

When asked how they overcome the reported obstacles, the participants reported that they relied on their family, in-store classes, and other available resources. The majority of participants reported not only reading books with their E-readers but also using the mobile devices to: access E-mail; communicate with their family and friends; browse lists of newly published books; compare book reviews; and purchase printed books to read. Some participants also reported using their mobile devices to kill time with playing games and introducing friends to a new technology. They are willing to adopt newer technologies and they desire access to better content. Some participants reported they love discovering and using new technology. These findings are consistent with prior predictions that older adults will adopt newer technologies that feel are not overly taxing (Charness & Holley, 2004).

## 5. Conclusion

The older adults interviewed were able to articulate their satisfaction and dissatisfaction with the E-readers and tablets that they had been using for several months. Overall, there was general satisfaction with the devices. Many participants reported that the ability to customize the settings improved their experiences. Additionally, other participants reported using mobile technology to keep in touch with family members.

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