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Gathering the Requirements for a Mobile Device Tutorial for Older Adults

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by

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A dissertation proposal submitted in partial fulfillment of the requirements
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We hereby certify that this dissertation, submitted by Michele Washington, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

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The United States, as well as other nations, is experiencing an increase in the older adult population. As a result of older adults living longer, mobile devices can be a major component in improving older adults' quality of life. However, older adults may encounter difficulties when using the mobile devices. This research examined the requirements in addressing the needs of older adults when using a mobile device. Specifically, the research focused on gathering the task and feature requirements for a mobile device tutorial for older adults. The approach was accomplished by the development of a mobile device questionnaire, which was first administered to a pilot group of older adults, to determine the questionnaire's comprehensiveness, then to an adequate sample size of older adults at four senior activity centers, located in Prince George's County, Maryland. Based on the responses to the specific research questions from the total population, two focus groups, consisting of a total of ten individuals, were selected. The focus groups, identified as focus group A and B, were created, based on how likely or unlikely the respondent would use a mobile device tutorial. Following the collection of the questionnaires from the total population and the two focus groups, the results of the data were analyzed.

The quantitative findings for the total population for the task requirements found that e-mail had the highest mean (4.40%), followed by health, shopping, restaurant, and financial. The findings for the feature requirements found that photos had the highest mean (4.21%), followed by camera, contacts, reminders, and FaceTime. The researcher developed findings based on the qualitative analysis from the total sample population. The major qualitative findings consisted of the benefits, to include access, availability, accuracy and usefulness. The drawbacks consisted of ease of use, user concerns, and the inability to ask questions. In the analysis of the quantitative findings for the task requirements, focus group A was slightly different from the total population, with shopping having the highest mean (6.80%), followed by health, restaurants, e-mail and financial. The findings for the task requirements for focus group B, were similar to the total population, with e-mail and health having the highest means (1.60%), followed by restaurants and financial (equal), and shopping. The findings for the feature requirements for focus group A, were similar to the total population, with photos and reminders (6.80%), followed by camera, and FaceTime and contacts. The findings for the feature requirements for focus group B, were also similar to the total population and focus group A, with photos having the highest mean (1.80%), followed by reminders, and contacts, camera, and FaceTime (equal). In the analysis of the qualitative analysis for focus group A some of the benefits included availability and encouragement. For focus group B, some of the benefits included working at one's own pace, and understandability of the device.

The qualitative analysis for the total population findings for the benefits of a mobile device tutorial included access to a tutorial, availability, skill set for a tutorial, and usefulness. The main responses pertaining to why the respondent would use a mobile device include the device's availability, ease to use, use at one's leisure, and using the device at one's own pace. In examining the qualitative findings for the two focus groups, the major areas for the benefits for focus group A, are similar to the total population. These areas include availability, encouragement, and listening to the tutorial several times. The major areas for focus group B, are similar to the total population and focus group A, to include listening to the tutorial several times. In exploring deeper into the focus groups' responses, the participants addressed specific questions regarding the task and feature requirements. For the specific task or feature requirements for which a respondent would likely use a mobile device tutorial for assistance, focus group A's responses were the features of FaceTime and the tasks of e-mail, photos, and contacts. Focus group B responses were the task requirement of health care and financial and feature requirements of camera and photos.

The mixed method analysis supports the premise that older adults would desire instructions on the identified task and feature requirements for a mobile device tutorial. The recommendations of the research consisted of additional examination of collecting data across multiple senior activity centers, the Baby Boomer generation, and older adult computer classes. Designing a mock-up tutorial, using another mobile device, and the use of current Siri feature, are other possible research investigations. Lastly, the implications of the study, filled the gap regarding senior adults and mobile devices, by contributing to the research pertaining to mobile device tutorials that would accommodate older adults.

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Chapter 1

Introduction

Background

In examining the older adult population, Wagner, Hassanien, and Head (2010) found that most of the world's developed nations are experiencing an increase in the average age of their population. The increase in the older adult population was also supported by Fisk, Rogers, Charness, Czaja, and Sharit (2009), who pointed out that within Asia, North America, and Europe, the current percentage of the population over age 65 ranges from 6% to 16%. By 2030, those percentages are estimated to range from 17% to 29% (Fisk, Rogers, Charness, Czaja, & Sharit, 2009). Additionally, according to the United Nations (2008), in the more developed regions, the population 60 and older is increasing at the fastest pace ever, growing at 2% annually, and is expected to increase by more than 50% during the next four decades, rising from 264 million in 2009 to 416 million in 2050.

In addition to older adults living longer, research has indicated that older adults will have to work longer as a result of the rise in the average age of the population and the state of the economy. According to McCloskey (2006), the graying of America will have a dramatic effect on the workforce, retirement age, healthcare, and elderly support services. The Transamerica Center for Retirement Studies (2011) reported that for many Americans, the foundation of their retirement strategy is simply not to retire, but to work considerably longer than the traditional retirement age or to work during retirement. The study indicated that 39% of the workers plan to

work past age 70 or do not plan to retire; 54% of the workers plan to continue working when they retire, and 40% now expect to work longer and retire at an older age (Transamerica Center for Retirement Studies, 2011). Heidkamp, Corre, and Van Horn (2010) validated that researcher and argued that because of the financial meltdown, many senior citizens noted that their retirement accounts were damaged, and those who had been experiencing extended unemployment were encountering challenges with their financial obligations.

Consequently, because older adults are living longer and are having to work for an extended time period, a definite need exists to ensure that information technology (IT) devices are designed to adapt to the older adult's everyday life. Fisk, Rogers, Charness, Czaja, and Sharit (2009) pointed out that designers hold the key, in many instances, to not only increase the market share for a given product, but also to increase the quality of older adults' lives. Along with the quality-of-life characteristic and the importance of designers in accommodating older adults, a need also exists to understand why older adults are hesitant to use the various types of information technologies. Fisk et al. stated that older adults report frustration in their interactions with new technologies, which suggests the systems may not have been designed to accommodate older adults' limitations and capabilities. According to Czaja (2005), unless an understanding exists as to why older adults have difficulty adapting to new technologies and unless system designers perceive older adults as active users of technology, successful use of technology will continue to be a challenge for future generations of older people. Leung, Findlater, McGrenere, Graf, and Yang (2010) also expressed the difficulty of adapting to new technologies and indicated that mobile computing devices can offer older adults support in their daily lives, but older adults often find such devices difficult to learn and use.

In examining the difficulty and the design of the IT device, the first step would be to gather the requirements for older adults to understand how to operate the mobile device. Next, in specifically exploring the mobile IT area, which has become an important technology in assisting older adults' quality of life, the mobile device requirements must be captured. By contrast, Malik and Edwards (2008) stated that many commonly used techniques of requirements capture for mobile technologies are inappropriate for use with older people for a variety of reasons, such as the cultural and experimental gap, as well as the wide range of characteristics and impairments.

Various mobile devices will be discussed throughout the research; however, the focus of the research will pertain to iPads. Specifically, the researcher of the current study will gather the task and feature requirements for a tutorial for mobile devices targeted at the senior population. The study will use a questionnaire, tailored to older adults, in order to assemble and establish the necessary elements for the mobile device tutorial. Through the analysis of the data collected from a sample of the older adult population, the research will enhance the quality of life for the senior adult population by providing them with the capability to better interact with mobile devices.

Problem Statement

Information technology (IT) devices have revolutionized the quality of life for individuals and subsequently have become an essential component in order for individuals to communicate. However, research has shown that a portion of society exists, the older adult population, may encounter some challenges when using an IT device. Leung, McGrenere, and Graft (2011) discussed how older adults have had difficulty in adapting and accepting new

technologies. Additionally, Aula (2005) posited that the elderly must be provided with enough support, must be motivated to make the first experiences with computers encouraging, and must see the possible benefits of using computers. Furthermore, difficulty with IT devices may cause the exclusion of the older adult portion of society, as reported by Coleman, Gibson, Hanson, Bobrowicz, and McKay (2010). The researchers indicated that older adults who are currently digitally disengaged from technology will find it increasingly difficult to access public information, leaving them potentially more socially excluded (Coleman, Gibson, Hanson, Bobrowicz, & McKay, 2010). Consequently, the disengagement of this population poses a number of challenges, as well as opportunities, to the design community (Coleman et al., 2010).

Research has also indicated that the design of IT devices is geared more toward the younger generation as opposed to the older generation. For instance, some IT devices do not consider the cognitive decline of older adults. According to Fisk et al. (2009), age-related changes in cognition can be important to consider when designing for older adults. Further, Slegers, Van Boxtel, and Jolles (2009) stated that because many cognitive abilities decline as a result of the normal aging processes, older adults are more likely to experience problems in the use of technological devices that are essential to daily tasks or that could enhance their autonomy. Sustar, Pfeil, and Zaphiris (2008) argued that older adults are a large market group with various needs and preferences that designers, developers, and engineers must take into account when creating products. Further, Shneiderman and Plaisant (2010) emphasized that understanding the human factors of aging can help designers create user interfaces that facilitate access for older adults. Last, Czaja (2005) indicated that unless an understanding exists as to why older adults have difficulty adapting to new technologies and unless system designers perceive older adults as

active users of technology, successful use of technology will continue to be a challenge for future generations of older people.

Recently, mobile technology has even further transformed the way society communicates, by enabling an individual to use a mobile device anywhere at any time. However, with the advancement of mobile technology, research illustrates that older adults encounter difficulties with mobile device technologies. Leung, McGrenere, and Graf (2011) indicated that mobile computing devices can offer older adults support in their daily lives, but older adults often find such devices difficult to learn and use. In examining older adults learning to use the mobile phone, Leung (2011) designed and prototyped a Help Kiosk, which is an augmented display system comprised of a desktop computer and a touchscreen monitor to help older adults learn to use smart phones. Additionally, in a mobile-phone study, Ji et al. (2010) articulated that various types of difficulties older adults have to overcome while using the phones causes their limited use of mobile phones. A few attempts, such as Jitterbug and RakuRaku, have been made to decrease the difficulties by implementing large-size buttons and minimizing unnecessary system features; however, these features are not sufficient for older adults to have a better experience with a mobile phone (Ji et al., 2010).

Therefore, in order to ensure that the mobile devices are sufficient for older adults to have a better experience, it would be prudent for the designer to gather the task and feature requirements for older adults. Additionally, with regard to learning to use the mobile device, a help tutorial could further alleviate the challenges an older adult would encounter. Therefore, the proposed study would examine the gathering of the task and feature requirements for a mobile device tutorial for older adults.

Dissertation Goal

The dissertation research goal is to gather the requirements for a mobile device tutorial for older adults. The objective of the goal is to perform research that would evaluate a group of older adults using a mobile device to determine the requirements for the mobile device tutorial.

The stated goal will be accomplished by collection of the data and measuring and analyzing responses from older adults using the developed questionnaire. The analysis of the results will aid the researcher in identifying the tasks and features that would be needed for the mobile device tutorial. Because of the limited research in the field, the results of the study will address the gap regarding the requirements for a mobile device tutorial for older adults.

Research Questions

Although IT designers have focused on gathering the requirements and have designed mobile technology with the younger generation in mind, specifications and design requirements for the older generation has been limited. According to Duh, Do, Billinghust, Quek, and Hua (2010), the older adult represents a valid group of users who can potentially benefit greatly from engaging in technology applications such as health-care systems or playing digital games. However, researchers have given less attention to the significance of senior citizens as technology users as compared to the younger population (Duh, Do, Billinghust, Quek, & Hua). Further, Czaja, and Lee (2007) argued that older adults' successful use of technology is predicated on systems that are designed to accommodate the needs and preferences of the older adult user group. Additionally, Plaza, Martin, Martin, and Medrano (2011) posited that to create

a cohesive and inclusive intergenerational society, technological products and services must be adapted to the needs and preferences of the aging society.

In addition to the limited design requirements for the older generation, older adults often have difficulty using mobile devices. Older people can be expected to have different approaches to technology from younger people (Conci, Pianesi, & Zancanaro, 2009). Because of the sensory, motor, and cognitive changes from aging, older people might need more time to learn, might be more error-prone, and might need more steps to operate the system (Conci et al., 2009). Further, Fisk, Rogers, Charness, Czaja, and Sharit (2009) stated that attention to characteristics of design to improve usability can improve the lives of older adults. For that reason, the gathering of requirements for a mobile device tutorial may assist older adults when using the mobile device.

The research questions pertained to task and feature requirements that older adults would need for assistance while using a mobile device. In distinguishing a task from a feature, a *task* is a function to be performed or undertaken or a sense that some part of a plan is being accomplished, whereas a *feature* is a prominent or distinctive aspect, quality, or characteristic. To illustrate, the following are some task and plan examples: plan: forwarding e-mails—the task would be to have assistance with e-mailing; plan: to buy groceries online—the task would be to have assistance with shopping; and plan: paying bills online—the task would be to have assistance with financial information. To illustrate features, the reminder feature is a distinctive aspect that aides someone in remembering to do something; the contact feature is a distinctive aspect that assists in readily available addresses and phone numbers, and the FaceTime feature is the videotelephony software, which enables teleconferencing via Wi-Fi.

Tasks and features are two operations which are accessed via the Internet. Internet network usage has enabled access to various applications, features, search engine, and interfaces. On a daily basis, the user population accesses some type of feature or uses some type of task, when surfing the Internet. The specific task used in the study are e-mail, health information, shopping, restaurants, and financial information. E-mail refers to seeking assistance with the transmission of text messages from the sender to recipient and health information is seeking the assistance for the prevention, treatment, and management of illness through services offered by the medical health professionals. The shopping task seeks the assistance with describing the purchasing of goods and services from a retail store or specialty department in a large store, and the restaurant task seeks the assistance with an establishment where food is served to customers. Lastly, the financial task seeks information pertaining to money matters. The specific features used in the study are contacts, reminders, FaceTime, photos, and camera. The feature "contacts" allows a user to access, search, or edit a list of users from a personal, business, or other accounts. The "reminders" feature, notifies or keeps track of the user's various items that the user has requested. According to the iPad User Guide, the "FaceTime" feature allows the user to make video or audio calls to other operating system devices or computers that support "FaceTime." The "photos" feature allows the user to take and view photos and the "camera" feature allows the user to take photos and videos. In the study, the research questions will specifically focus on the top Internet tasks and the most used features among older adults (Nayak, Priest, & White; Kurniawan, 2008; Renauld & Biljon, 2010).

Research Question 1: What task requirements would older adults need from a mobile device tutorial?

Using a Likert-type scale—definitely, 5; very probably, 4; probably, 3; probably not, 2; very probably not, 1—the survey questions were measured by asking questions related to the older adults' Internet tasks. The Internet tasks, according to Nayak et al. (2010), consisted of: (a) e-mail use, (b) general information, (c) bookings (airline tickets or theatre), (d) banking transactions, (e) health information, (f) news, (g) shopping, (h) stock markets, and (i) chat rooms. Survey questions:

1. How likely are you to use a mobile device tutorial for assistance with e-mail (i.e., sending, receiving, forwarding, deleting, recalling)?

2. How likely are you to use a mobile device tutorial for assistance with health information (i.e., diabetes, stroke, heart attack, locating a doctor, locating a dentist, physical therapy)?

3. How likely are you to use a mobile device tutorial for assistance with shopping (i.e., purchasing groceries, apparel, or electronics)?

4. How likely are you to use a mobile device tutorial for assistance with researching restaurants?

5. How likely are you to use a mobile device tutorial for assistance with financial information (i.e., paying bills, checking account balances, or transferring funds online)?

6. Is there any other type of task for which you would request assistance? If so, please indicate it and explain why.

Research Question 2: What feature requirements would older adults need from a mobile device tutorial?

The Apple iPad featured applications used for the study are: FaceTime, contacts, reminders, photos, and camera. The FaceTime application allows the user to engage in video

calls with another person who has a Macintosh or iDevice operating system. The contacts application stores information about people in which the user is able to include information, such as the address, phone number, and birthday for the person. A user would use the reminders application to enter information for a to-do list or for remembering ongoing tasks. The camera application allows the user to take pictures and videos using the 5-megapixel camera. When the user opens the Camera application, the user will see the image that is coming in through the camera. Last, the photos application allows the user to view pictures and videos on the iPad. The user is able to rotate, enhance, crop, and eliminate red eye.

Survey questions:

1. How likely are you to use a mobile device tutorial for assistance with accessing contacts?

2. How likely are you to use a mobile device tutorial for assistance with accessing reminders?

3. How likely are you to use a mobile device tutorial for assistance with accessing FaceTime?

4. How likely are you to use a mobile device tutorial for assistance with accessing photos?

5. How likely would you use a mobile device tutorial for assistance with accessing camera?

6. Is there any other type of feature for which you would request assistance? If so, please indicate it and explain why.

Relevance and Significance

The relevance of the study pertains to the actuality that older adults will have a longer lifespan, and as a result, a need exists to accommodate the older adults' IT needs. Farage, Miller, Ajayi, and Hutchins (2012) supported the notion and discussed the worldwide population shift of people living longer, where there must be a focus toward a different mindset of design of every aspect of society, from goods and services to media, IT, workplace, and travel, whereby the senior adult population's desires should be taken into consideration. With regard to the older and the younger generations' needs, according to McMurtrey, Zeltmann, Downey, and McGaughey (2011), evidence remains of a "digital divide" between the young and the old when it comes to older adults' respective use of computers and related technology. Wagner, Hassanein, and Head (2010) advocated this view by indicating that older adults have different needs and concerns compared with the younger generation, which is a result of natural physical and cognitive changes from the aging process of older adults. This observation also holds true regarding mobile devices, where IT designers have mainly focused on the younger generation as opposed to the older adult generation when designing mobile devices. Research also indicates that some improvements have occurred in addressing the IT needs of older adults; however, research indicated that further work is needed (Czaja & Lee, 2007; Dickinson, Arnott & Prior, 2007; Gell, Rosenberg, Demiris, LaCroix & Patel, 2013; Winstead, Anderson, Yost, Cotton, Warr & Berkowsky, 2012). In reiterating the assessment for IT developers, according to Czaja and Lee (2007), a challenge for the research and the design community is to "know thy user" (p. 342) and better understand the needs, preferences, and abilities of older people in order to make technology useful to and usable for older adults.

The significance of the tutorial would demonstrate how the tool might be an effective method in assisting older adults with accepting and using IT. Research regarding tutorials and success include the FileTutor, an interactive tutorial, which was designed for older users and provided instructions regarding file management for the Windows environment (Hawthorn, 2005). Another tutorial accomplishment pertained to a search and navigation system that provided a secure environment for the user to become exposed to how to interact with the Web and directed the user through a method that enabled them to use the Web browser and portal (Dickinson, Smith, Arnott, Newell, & Hill, 2007).

The importance of gathering the requirements is a necessary step that would consist of eliciting, analyzing, documenting, and validating the requirements for the mobile device tutorial. Requirement gathering is difficult because it is part art, part science and is the basic fundamental that outlines the deliverables that the project must produce (Biafore, 2011). Further, according to Jouvel, Templier, and Boileau (2012), gathering requirements is essential to a project because it is the basis of the agreement between users and developers.

As mentioned previously, because adults are living longer, it is necessary that IT devices, specifically mobile devices, are tailored to the desires of the senior population. Therefore, the significance of the study will increase the body of knowledge related to the understanding of the needs of the senior population and mobile devices. Additionally, the identification of the requirements for the tutorial would improve the quality of life for older adults.

Barriers and Issues

Some barriers and issues exist that would impede the successful completion of the research. The gathering of the required number of voluntary participants may present a barrier

because the seniors may be reluctant or may have no time to or interest in participating. If the older adult decides to participate in the survey then realized that the time involved to complete the survey, he or she may choose not to participate in that case. Similarly, if the older adult decided to participate in the interview, then realized the additional time involved to participate in the interview, the older adult may chose not to participate in that case. Additionally, the challenge of creating a statistically valid and unbiased questionnaire, as well as performing the statistical analysis, may pose a challenge. The researcher was able to successfully obtain 113 participants for the survey, which met the minimal requirements.

Limitations and Delimitations

There are limitations where no degree of control exists that could affect the results of the research. Some of the limitations are as follows:

- User familiarity with the iPad.
- The results may not be generalized beyond the precise population from which the researcher drew the sample.
- The results of the study might not exactly reflect the views of all older adults of the older adult population. This situation may be caused by failure of the sample respondents to answer with openness.
- The study will only use one iPad for the study, which may result in a longer period spent with each senior citizen.
- The study will only apply to iPads and not other tablet devices.

There are delimitations where some degree of control exists that may affect the results of the research. Some of the delimitations are as follows:

- The first delimitation of the study involved participant age requirement in order to partake in the study. In order to partake, participants must be at least 65 years of age. The researcher imposed this delimitation because the study is specifically tailored directly to the older adult population.
- The second delimitation involved the task requirements, which the researcher selects.
- The third delimitation involved the feature requirements, which the researcher selects.

Definition of Terms

Digital divide. This is the discrepancy between people who have access and the resources to use new information and communication tools, such as the Internet, and people who do not have the resources and access to the technology. The term also describes the discrepancy between those who have the skills, knowledge, and abilities to use the technologies and those who do not. The digital divide can exist between those living in rural areas and those living in urban areas, between the educated and uneducated, between economic classes, and on a global scale between more and less industrially developed nations (Webopedia, 2014).

Feature. This is a prominent or distinctive aspect, quality, or characteristic (The Free Dictionary, 2014).

Featured capabilities of the Internet include the address book, alarms and reminders, SMS-write, SMS-read, SMS-write, and checking missed calls (Kurniawan, 2008; Renaud & van Biljon, 2010).

G.I. generation. This applies to adults born in 1936 or earlier (Zickuhr, 2010).

iPad. This is a handheld tablet computing device from Apple Inc. that first launched in January 2010. The iPad is designed for consumers who want a mobile device that is bigger than a smartphone but smaller than a laptop for entertainment multimedia (Webopedia, 2014).

Mobile device. This generally refers to a cell phone, smart phone, or tablet. However, depending on context, the term may encompass laptops and netbooks or any other portable electronic product (Encyclopedia2, 2014; The Free Dictionary, 2014).

Older adult. This applies to a person 65 years of age or older. Subgroups of the older adult population are: younger old (ages 65–75), older-old (ages 75–85), and oldest old (ages 85+; Abeles et al., 1998).

Perceived ease of use. This is the degree to which the user expects the system to be free of effort (Davis, 1989).

Perceived usefulness. This is the user's probability that using a system will increase his or her job performance (Davis, 1989).

Smart phones. Smart phones combine both mobile phone and handheld computers into a single device. Smart phones allow users to store information (e.g., e-mail), install programs, and use a mobile phone in one device (Webopedia, 2014).

Task. This is a set of instructions, data, and control information capable of being executed by the central processing unit of a digital computer in order to accomplish some purpose (Retrieved from http://encyclopedia2.thefreedictionary.com/ computer+task.html). Top Internet tasks consist of e-mail use, general information, booking, banking transactions, health information, news, shopping, stock markets, and chat rooms (Nayak et al., 2010).

Technology acceptance model (TAM). This is a model Davis (1989) originated that asserts that beliefs around perceived ease of use and perceived usefulness determine the significance of IT behavior.

Summary

Research indicates that senior adults are living longer, and the population of older adults will rise significantly. According to Abeles et al. (1998), at the peak of the aging of the Baby Boomers, 20% of the population of the United States will be 65 years old or older. Also, as a result of the increase in the senior population, older adults' quality of life will become an important aspect that must be considered (Abeles et al., 1998). Further, many senior adults are IT savvy and use technology on a daily basis to communicate with friends and family. The most recent IT device that has increased in popularity is the iPad. Along, with the popularity of the devices, older adults would also value the addition of a tutorial to assist in maneuvering the mobile device. Therefore, mobile device designers should ensure that they accommodate older adults' needs. However, before the developers can design the mobile device tutorial, the senior population's requirements must be understood. This dissertation addresses the gathering of the requirements for a mobile device tutorial for older adults.

The remainder of the paper is organized into the following chapters. Chapter 2 provides a review of the literature regarding older adults. In examining the holistic view of older adults and IT, the literature review will explore the various technology acceptance models, taking into consideration the cognitive issues that older adults experience in conjunction with the need to have mobile-technology devices designed for the senior population. The review will also contain discussion of mobile technology, the significance of tablets, availability of tutorial assistance,

and the gathering of requirements for older adults. Chapter 3 provides the methodology, where it chronicles the mixed method research design, the pilot group, sample population, and focus groups. Following the population, the chapter discusses the Nova Southeastern University Institutional Review Board process and how the research is executed, along with the questionnaire development and validation. The next focus area is the questionnaire, where the chapter outlines the various sections and concludes with the resource requirements.

Chapter 4 presents the results of the study. The chapter begins with the execution of the pilot study, which consists of five older adults, whose purpose was to perform an assessment of the questionnaire. After the revision of the survey, based on the feedback of the pilot group, the survey was administered to 113 older adults, at four senior activity centers. A quantitative analysis was performed, which included the demographics of the population and other components of the questionnaire regarding mobile devices and the specific research questions pertaining to the device. Following the quantitative analysis, a focus group quantitative analysis was performed on two focus groups. In addition to the quantitative analysis, qualitative analysis was also performed, to ascertain the participants' thoughts and views on the research area. Additionally, qualitative analysis also included the responses from the two focus groups. The chapter concludes with the quantitative and qualitative findings. Chapter 5 provides the conclusions, implications, recommendations, and summary of the research. The chapter reviews the goal of the research, the limitations, and the implications. Next, the chapter concludes with seven recommendations for future research.

Chapter 2

Review of the Literature

Overview

The older adult generation continues to increase in the world's population. According to the U.S. Department of Commerce, U.S. Census Bureau (2010), the overall U.S. population is projected to change greatly during the next four decades (figure 1). Much of this change is driven by the aging Baby Boomers, declining fertility, improved health, longevity, and trends in immigration (U.S. Department of Commerce, 2010). On a global level, according to Bloom, Boersch-Supan, McGee, and Seike (2011), the number of those over age 60 is projected to double from less than 800 million today, representing 11% of the world's population, to just higher than 2 billion in 2050, representing 22% of the world's population. Additionally, with the increase in the world's population and the dynamic proliferation of information technology (IT) related products, it is prudent for the older adult population to be included in the IT consumer-base market. Further, to validate older adults' inclusion in the consumer-based market, as well as the desire to be "linked" to society, Zickuhr (2010) reported the percentage of the Internet-using population for the Silent and G.I. generations (table 1).

Mobile technology is increasingly pervasive in today's IT consumer-based market. Both younger and older generations are using some form of mobile devices, be it a mobile phone (smart phone) or tablet. According to Plaza, Martin, Martin, and Medrano (2011), mobile phones are promising tools to improve the quality of life for the elderly. Focusing on the tablet, Jayroe and Wolfram (2012) examined how the mobile tablet device contributes to the quality of

life for the elderly. Zickuhr (2013) illustrated the tablet ownership over time for the various age groups and highlighted the increase of 18% for the 65+ age group (figure 2).

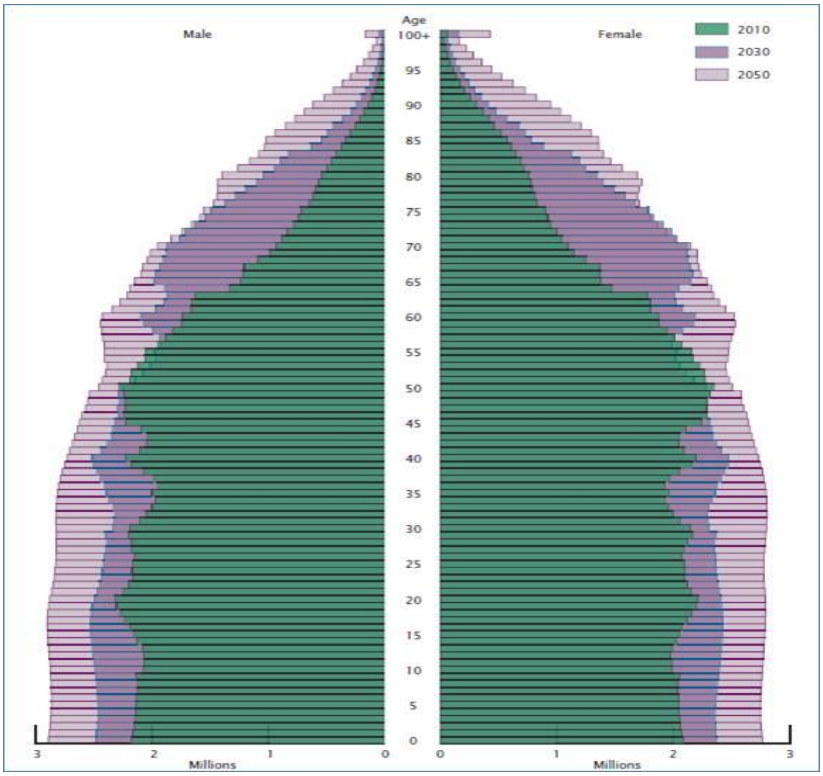

Figure 1. Age and Gender structure of the population for the United States: 2010, 2030, and 2050. Adapted from U.S. Census Bureau, 2010.

An additional consideration when discussing the older adult generation is the decline of older adults' cognitive skills, which necessitates the need to address the mental-processes issues. A proposed approach to address the cognitive skills decline is use of a tutorial that may assist older adults when using a mobile device. An interactive tutorial application Hawthorn (2005) developed assisted older adults in using the Windows file-management system. However, prior to the development of a tutorial for the mobile device and to ensure that the device accommodates older adults, it is important to gather the requirements.

Table 1

Defining Generations

Generation name	Birth years, Ages in 2010	% of total adult population*	% of internet-using population*
Millennials	Born 1977-1992, Ages 18-33	30	35
Gen X	Born 1965-1976, Ages 34-45	19	21
Younger Boomers	Born 1955-1964, Ages 46-55	20	20
Older Boomers	Born 1946-1954, Ages 56-64	14	13
Silent Generation	Born 1937-1945, Ages 65-73	7	5
G.I. Generation	Born -1936, Age 74+	9	3

Note. N = 2,252 adults 18 and older. Adapted from Pew Research Center's Internet & American Life Project, April 29–May 30, 2010, tracking survey.

		April 2012	May 2013	Change
All adults ages 18+		18%	34%	+16 percentage points
Gender				
a	Men	20	32[d]	+12
b	Women	17	35[d]	+18
Age				
a	18-29	20[cd]	34[d]	+14
b	30-49	26[cd]	44[acd]	+18
c	50-64	14[d]	32[d]	+18
d	65+	8	18	+10
Race/ethnicity				
a	White, Non-Hispanic	18	33	+15
b	Black, Non-Hispanic	15	32	+17
c	Hispanic (English- and Spanish-speaking)	23[b]	34	+11
Education attainment				
a	Less than high school	11	17	+6
b	High school grad	13	26[a]	+13
c	Some College	19[ab]	35[ab]	+16
d	College +	28[abc]	49[abc]	+21
Household income				
a	Less than $30,000/yr	7	20	+13
b	$30,000-$49,999	15[a]	28[a]	+13
c	$50,000-$74,999	22[ab]	38[ab]	+16
d	$75,000+	34[abc]	56[abc]	+22
Urbanity				
a	Urban	19[c]	33	+14
b	Suburban	21[c]	37[c]	+16
c	Rural	9	27	+18
Parental status				
a	Parent with minor child living at home	26[b]	50[b]	+24
b	Non-parent	15	27	+12

Figure 2. Tablet ownership by demographic group over time. Adapted from Pew Research Center's Internet & American Life Project, April 17–May 19, 2013, tracking survey of 2,252 adults ages 18 and older.

Technology Acceptance Models

According to Mitzner et al. (2010) and Chen and Chan (2011), to better forecast technology usage behavior, it is important to understand the factors that influence usage and acceptance of technology. A theoretical model that would be most appropriate to illustrate the acceptance of technology would be the technology acceptance model (TAM). The TAM, which Davis (1989) originated, focused on user acceptance of information systems, where the two external variables, perceived usefulness (PU) and perceived ease of use (PEOU), are relevant factors for the attitude toward using the system and that computer usages is determined by the behavioral intentions to use the system. PU refers to the prospective user's subjective probability that using a specific application system will increase his or her job performance and PEOU refers to the degree to which the prospective user expects the target system to be free of effort.

Various technology models were examined with regard to older adults. In using the TAM as a model and in identifying another age population, Chen and Chan (2011) found that TAM is also effective when applied to older adults, where the basic constructs, such as PU and PEOU, are critical for older adults as well as the young. With regard to older adults, Chen and Chan indicated that to understand how older people interact successfully with software and hardware of technological devices and systems, it is essential to take into account biophysical and psychological characteristics, as well as abilities and problems older adults experience. In examining the demographics and the cultures, Chen and Chan noted that in Western cultures, the effect of PU is more important, whereas PEOU is more relevant in non-Western cultures. Asian countries, with a larger percentage of the older population of the world, have not been widely explored. The authors noted that it is not known to what extent the findings for populations in

developed countries can be generalized to the older population in developing countries (Chen & Chan, 2011).

In another study, Nayak et al. (2010) used the principles of the TAM model to verify variables related to the level of Internet usage among older adults. The results emphasized the importance of educating older adults with regard to the benefits of computer technology and also how older adults required training to accommodate their needs (Nayak et al., 2010). In examining TAM, older adults, and the Internet, Pan and Jordan-Marsh (2010) discussed how various factors intertwined to affect Chinese older adults' decisions to adopt the Internet by applying an expanded TAM. Four key predictors were PU, PEOU, subjective norm (SN), and facilitating conditions (FC). The results indicated that PU, PEOU, and SN were significant predictors of Internet adoption among Chinese older adults, whereas PU, SN, and FC were significant predictors of Internet use intention (Pan & Jordan-Marsh, 2010). According to the authors, the study made important empirical and theoretical contributions to studies regarding aging and technology, as it applied the TAM model to examine Internet use behaviors among the older population in a developing country. Furthermore, the authors added two variables, SN and FC, into the TAM model so that researchers would have a better understanding regarding how Internet use behaviors among Chinese older adults are influenced by SN and by some environmental barriers such as lack of access, training, and technical support (Pan & Jordan-Marsh, 2010). In examining the ease of use; usefulness; and a new variable, trust, McCloskey (2006) modified the TAM to examine the effect of attitudes concerning ease of use, usefulness, and trust on electronic commerce usage among older Americans. The author stated that for older consumers, online shopping needs to be easy enough for the population to undertake so older adult consumers can realize the usefulness (McCloskey, 2006). Additionally, McCloskey noted

that as expected, trust had a significant, positive effect on ease of use and usefulness. Last, according to McCloskey, the more a user trusted that his or her financial and personal information would be confidential, the greater online shopping was easy to use and useful.

In researching the TAM and mobile technologies, Van Biljon (2006) developed a model for representing the influence of motivational needs and cultural factors on mobile-phone usage. As Van Biljon claimed, the TAM provided a useful reference point for the issues to investigate when considering the factors that influence mobile-phone usage, even though the TAM emphasized adoption, the research focused on mobile-phone usage.

Renauld and Van Biljon (2008) expanded the TAM model and proposed the senior technology acceptance and adoption model (STAM), for the senior user (figure 3). The components of the model were comprised of user context, perceived usefulness, intention to use, experimentation and exploration, ease of learning and use, confirmed usefulness and actual use (Renauld & Van Biljon, 2008). The results provided insight into the lives of older adult users (between 60 and 92), as well as those aspects of the older adult users' lives that can have an effect on the older adult users' acceptance and usage of mobile phones.

Older Adults and Cognitive Issues

Older adults experience age-related changes—both physical and cognitive. Common age-related physical changes include hearing impairment, weakening vision, and the increasing probability of multiple chronic conditions such as arthritis, hypertension, heart disease, diabetes, and osteoporosis (Abeles et al., 1998). The authors stated that although some degree of cognitive impairment exists, cognitive changes in older adults are highly variable from one person to

another but can include a decline in information-processing speed and memory problems. Therefore, in designing devices for older adults, Fisk et al. (2009) and Chen, Lee, and Kirk

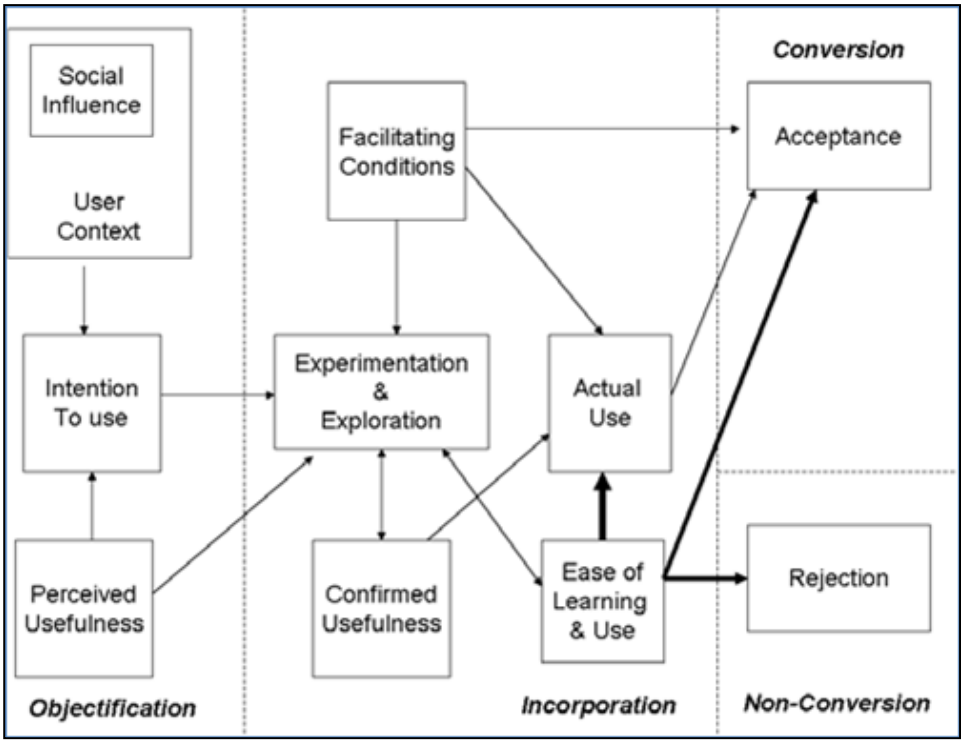

Figure 3. Senior technology acceptance and adoption model (STAM). Adapted from Renauld and Van Biljon (2008).

(2013) stated that age-related changes in cognition limitations are important considerations when designing future product devices for older adults. Additionally, according to Pak and McLaughlin (2011), when designing displays and user interfaces for older adults, it is important to understand the older adults' cognitive capabilities and limitations. Further, according to Fisk et al., designers must ensure that devices will be usable for individuals with a range of abilities and experiences. Lastly, Fisk et al., expected that successful design for older adults would result from an understanding of the typical changes that accompany aging, how awareness of such changes should influence the design process, and a human-factors approach to development and

testing of products, systems, and environments. Sharit, Hernandez, Czaja, and Pirolli (2008)'s goal was to investigate the influences of various domains of Internet-related knowledge and cognitive abilities on Internet information-seeking performance among older adults. For many older adults who have limited experience and knowledge concerning the Internet and exhibit declines in cognitive abilities, effective Web-based information seeking can be a daunting task (Sharit, Hernandez, Czaja, & Pirollo, 2008). Therefore, the authors indicated that understanding the factors that deter and influence older adults' Internet information-seeking activity can lead to the design of better websites, search engines, and instruction that takes into account the capabilities and limitations of older adults.

In examining mobile devices and cognitive issues, as well as the quality of life for older adults, Leung et al. (2012) stated that mobile devices can assist older adults in being more independent as they experience declines in perceptual, motor, and cognitive abilities because of the aging process. However, some challenges exist for the older adult when it comes to cognitive issues of the mobile device. In identifying some of the challenges of mobile phones, Kurniawan (2008) stated that older adults experienced problems related to mobile device displays that are too small and difficult to see; buttons and characters that are too small, which cause older adults to push wrong numbers frequently; too many functions; a non-user-friendly menu arrangement; unclear instruction on how to find and use a certain function and services that are too expensive.

Older Adults and Design

Because older adults are living longer and are having to work for an extended time period, a definite need exists to ensure that IT devices are designed to adapt to older adults' everyday lives. Rogers and Mynatt (2003) pointed out that many computer-based systems have been designed with little regard for potential older adult users. The demands of designing technology for older adults are clearly pointing the way for the human-factors researchers and practitioners to take a more active lead in developing design specifications for everyday and advanced technology (Rogers and Mynatt). Reinforcing the need for creating design requirements, Czaja, Gregor, and Hanson (2009) stated that the successful integration of technology into the lives of older people depends significantly on the quality of the design of systems, as well as on the willingness and ability of older people to engage with such systems. Czaja and Lee (2007) indicated that successful use of technology among older adults is predicated on systems that are designed to accommodate the needs and preferences of the older adult user group.

In examining the importance of designing IT systems for older adults, Sustar, Pfeil, and Zaphiris (2008) posited that older adults are a large market group with various needs and preferences that designers, developers, and engineers must take into account when creating products. Shneiderman and Plaisant (2010) also supported this view and emphasized that understanding the human factors of aging can help designers create user interfaces that facilitate access among older adult users. Further, Coleman et al. (2010) stated that it is clear that the older adult population will not become users of technology until the designers change the older adults' perceptions about the usefulness of technology or until technology itself changes to better address the older adults' interests and needs. Zajicek and Brewster (2004) stated that failure to

take into account the special needs of older adults will result in older adults becoming marginalized through lack of access to information and services.

In realizing design specifications to accommodate older adults, it would behoove technology designers to involve older adults in the design process. In supporting the importance of involving older adults in the design process, Czaja and Lee (2007) stated that it is critical to involve older people in the design and testing of technical systems and applications. Eisma et al. (2004) stated that if designers are to design products that are suitable for and usable by older people, it is essential that researchers and developers are aware of effective methods for interacting with and obtaining high-quality data from older people. Such methods will enable the designers to learn from older people what functionality and attributes are important to them in new products, what motivates them to use a product, and what factors would hinder the usability of a proposed product (Eisma et al., 2004). Most notably, Eisma et al. stated the designers would be able to conceptualize how aspects of older adults' lives could be improved by technology.

Older Adults and Mobile Technology

In examining the mobile application and technology literature, Billi et al. (2010) presented a unified methodology for the evaluation of accessibility and usability of mobile applications. According to Billi et al., mobile devices inherently pose various limitations, namely: a small screen, limited input capabilities, limited and costly bandwidth, limited connectivity, limited computational resources, limited power, and wide heterogeneity. The findings consisted of the proposed usability heuristics for mobile computing, which emphasized the ease of input, screen readability and glaceability, flexibility, efficiency of use, and realistic

error management (Billi et al., 2010). In examining the literature regarding learning to use a mobile device, Leung et al. (2012) investigated how older adults learn to use mobile devices and their desires and challenges in order to discover behavior to support them in the learning process. The authors explored whether the respondents want to learn to perform task steps or whether it was the participants' intent to increase an understanding of how to use the device. The findings from the survey and the field study indicated that older adults have a definite partiality for using the device's manual over trial-and-error, regardless of the identified challenges with using the manual (Leung et al., 2012).

Several types of mobile devices exist, including smart phones and tablets. In examining the mobile phone, Hassan and Nasir (2008) stated that mobile phones can potentially play a significant role in assisting older people in many ways, especially in terms of maintaining social relationships and providing a sense of safety and accessibility. Further, mobile phones can vastly improve the quality of life for the elderly, but only if these users perceive and experience the phones as useful and usable (Gelderblom, van Dyk, & van Biljon, 2010).

An IT mobile device that older adults may be embracing and may accommodate the older adults' quality of life is the mobile phone. According to Plaza, Martin, Marin, and Medrano (2011), mobile phones can be considered promising tools to improve the quality of life for elderly people. Additionally, according to Kurniawan, Mahmud, and Nugroho (2006), mobile phones can potentially play an important role in helping older people in many ways, especially with the increasing range of telephone-based services (i.e., telephone banking and shopping). Leung et al. (2010) further supported the research regarding mobile phones by stating that mobile-computing devices, such as smart phones, offer older adults 65+ a variety of useful tools and services to age more independently, both inside and outside the older adults' home. With

regard to acceptance of the mobile device, according to Wilkowska and Ziefle (2009), mobile devices should be developed in a way that enables older people to use them and, even more important, that the mobile phone's appropriate quality and constitution tempt the consumer to accept and to use the device.

Kurniawan, Mahmud, and Nugroho (2006) indicated that if the problems related to the use of mobile phones can be solved, mobile phones can potentially play an important role in helping older people in many ways. Kurniawan et al. indicated that the problems with the mobile phones consisted of usage patterns, the buttons being too small, menus with too many options, and functions that are difficult to understand. The results of the study indicated that the features participants would desire included a button to prevent accidental dialing, a panic button, caller identification, a simpler menu screen, and a button to place a caller into a contact list (Kurniawan, Mahmud, & Nugroho, 2006).

In Leung et al.'s (2010) study regarding mobile devices, the goal was to improve the learnability of mobile device applications for older adults in order to lower the barrier to adoption of mobile technology by the older adult population. Leung et al. (2010) indicated that one potential design approach to improve the learnability of mobile devices was a multilayered interface where novice users started with a reduced-functionality interface layer that only allowed them to perform the basic tasks before progressing to a more complex interface layer when the older adult was comfortable. Accordingly, a similar feature that improves learnability is progressive disclosure, which helps prioritize the novice user's attention, so that he or she only spends time on features that are most likely to be useful to them (Nielsen, 2006; Carroll & Rosson, 1987; Carroll & Carrithers, 1984; Carroll & van der Mei, 1996; Spiller, 2010). Leung et

al. found that multilayered interfaces could help both younger and older adults learn to perform tasks on a mobile application.

Kurniawan (2008) combined qualitative and quantitative analysis methods of Delphi interviews, focus-group discussions, and an online survey for the mobile phone to accommodate the older adults' desires. According to Kurniawan, the address book and reminders are the desired features that benefited the older adults' cognitive functioning and memory needs. The address book/contacts and reminders are among the features that were explored in the current research using the iPad mobile device. In highlighting the findings, Kurniawan presented a vision of the issues older mobile-phone users encountered and the features that mobile phones should possess. In focusing on the design aspects, the study provided design preferences that would benefit designers of mobile phones, as well as mobile-phone service providers. Another design aspect that could possibly diminish the challenges older adult users experience would be to include older adults in the requirements and development phase of the design.

Gelderblom, van Dyk, and van Biljon (2010) indicated that almost all older users need training before they will use more than the two basic functions (sending and receiving calls) of a mobile phone. Further, the older user is not naturally inclined to experiment, and the user is not comfortable with exploring the possibilities that the phone offers (Gelderblom, van Dyk, & van Biljon, 2010). As stated earlier regarding the challenges that older adult users experience with mobile devices, one possible cause of the problem is the lack of understanding among mobile-phone designers regarding the complex nature of functional impairment older mobile-phone users experience (Kurniawan, 2008). Additionally, another reason older adults may have difficulty learning the use of mobile device interfaces is because of the fact that many older

adults have less computer and mobile device experience than young adults, thus decreasing opportunities for positive transfer (Leung, 2009).

Older Adults and Tablets

In examining the tablet ownership, according to Zickuhr and Madden (2012), the older adults' tablet ownership is 8% and desktop ownership is 48% (figure 4). In exploring the similarities between the desktop and tablet device, Jayroe and Wolfram (2012) determined whether the tablet could provide an enhanced capability to address network resources than desktops and thereby provide better information search tasks. Ten residents were presented with six search tasks, specifically two pre-defined Internet tasks on the seniors' systems and two on a tablet device. Jayroe and Wolfram, posited that the participants were able to complete the tasks using both devices. Additionally, the participants revealed that the screen size and lack of a touchable keyboard presented challenges. In contrast, Nguyen and Chapparo (2010) conducted a survey exploring iPad usage where the respondents gave favorable reviews of the iPad, noting its overall ease of use, large screen size, and portability. Werner and Werner (2012) in a short-term and long-term study assessed whether the acceptance and usability of a tablet would reduce the barriers that the elderly currently encounter. The results of studies indicated that there was an ease of use when using the tablet, especially when it pertained to the nontechnical look and feel of the touchscreen (Werner and Werner). Most important, Werner and Werner noted that user training for the tablet has the capability to reduce some of the barriers encountered when accessing the Internet. In a similar study, Werner, Werner, and Oberzaucher (2012) performed a usability study in Austria to determine whether tablets have the potential to minimize the technical, social, and economic barriers. The older adults were interviewed and were asked to

complete predefined tasks by using the tablet's functions. The tasks consisted of searching for the weather forecast, retrieving the latest news, reading and sending e-mails, and searching on YouTube. All users stated that the tablet was user friendly, although it took some time to become acclimated to handling the device. The participants rated the readability – very good; writing – good; and gesture control – very good. Mainly, the findings indicated an overall positive impression of the device and pointed out that the tablet is capable of reducing the barriers to accessing the Internet and allowed the senior with minimal awareness, to use the device (Werner, Werner, & Oberzaucher, 2012).

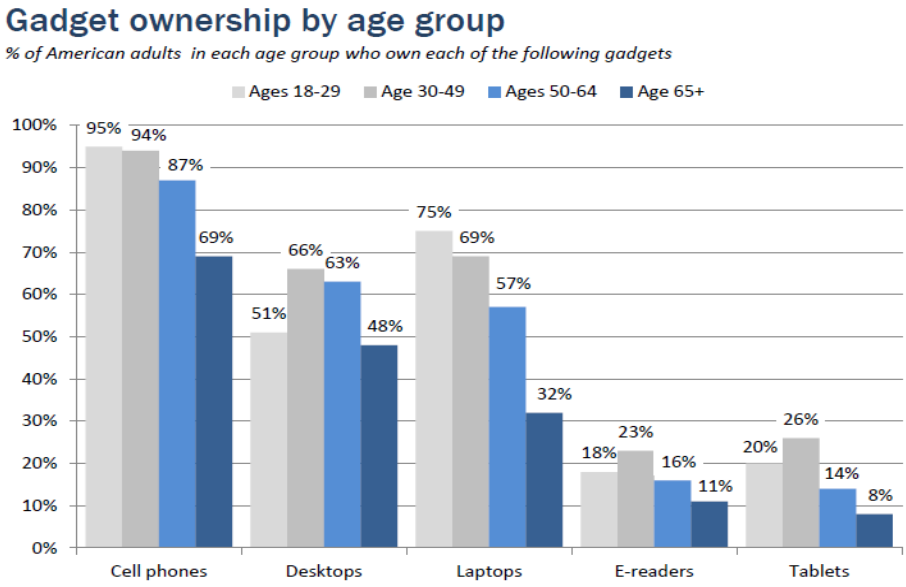

Figure 4. Gadget ownership by age group. Adapted from Zickuhr and Madden (2012).

Muller, Gove, and Webb (2012) illustrated a multimethod examination regarding tablet activities in the United States where the 33 participants ranged from 18 to 70 years of age. The comprehensive analysis of tablet-use activities included checking e-mails, playing games, and social networking. The study also examined the setting and circumstances of the activity e.g.,

sitting on the couch having a cup of coffee). The findings concluded that tablets were primarily used for personal activities, as well as for providing a thorough analysis of each of the activities. Muller et al. also iterated the importance of the developers designing the tablets to ensure the device accommodates the user. In supporting the need for the current study, the authors stated that there has been a great deal of research regarding smartphones; however, there has been little research regarding tablets. In a related study regarding the use of tablets, Nguyen and Chapparo (2010) conducted a survey exploring iPad usage where the device was primarily used for personal/leisure and work (figure 5). Specifically, the personal/leisure activities applied to Web browsing, e-mail usage, reading news and eBooks, social networking, and playing games (figure 6). The respondents gave favorable indications of the iPad, noting its overall ease of use, large screen size, and portability. With regard to the best features of the iPad, the respondents cited the Safari Web browser, e-mail, maps, and calendar. Last, the tasks that the respondents never used the iPad for were editing and posting photos, creating music and art, and online banking.

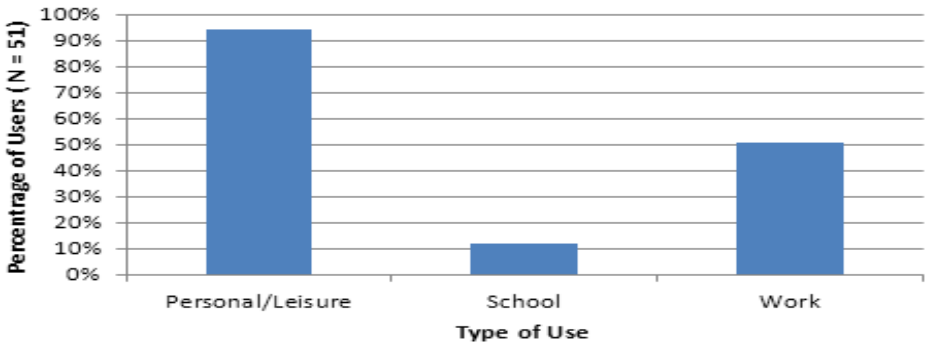

Figure 5. Primary use of iPad. Adapted from Nguyen and Chapparo (2010).

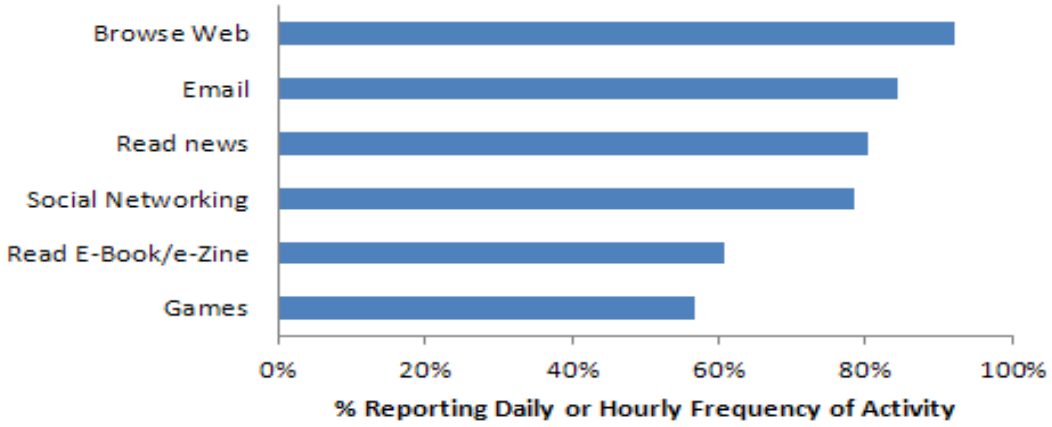

Figure 6. Daily/hourly activities with iPad. Adapted from Nguyen and Chapparo (2010).

Tutorial Assistance

Because of the difficulties of IT devices and systems, tutorial assistance research is occurring in academia. Within academia, the William and Flora Hewlett Foundation awarded a grant to Carnegie Mellon University for the Open Learning Initiative (OLI), which is an open educational resources project, where the objective is to create Web-based learning environments (Thille, 2012). Thille, noted that one of the interesting features of OLI course design is the quasi-intelligent tutors—or "mini-tutors"—integrated within the learning activities throughout the course. According to author, an intelligent tutor is a computerized learning environment whose design is based on cognitive principles and whose interaction with students is based on a human tutor, who addresses student errors, answers questions, and maintains a low profile when the student is making progress (Thille, 2012).

In exploring methods to assist individuals, using IT tutorials, as well as online assistants, may serve the purpose. In focusing on online tutorials for French students, Brudermann (2010)

focused on the implementation of an online pedagogical assistant, which consisted of a customized website, online help devices, and an online resource center. In addressing the problem from the typology, the online pedagogical assistant emphasized that the students should concentrate on their needs, such as self-correction, through online references, online help, and other written task requirements versus contacting the tutor (Brudermann, 2010). The researcher's findings indicated that online help was developed to assist students as opposed to the need for a tutor (Brudermann, 2010). In identifying another type of online tutorial, Xie, Yeh, Walsh, Watkins, and Hung (2012) explored the applicability of an integrated e-health online tutorial for older adults. The authors noted that relatively little is known regarding designing effective tutorials to aid older adults in developing online health-information seeking abilities (Xie, Yeh, Walsh, Watkins, & Hung, 2012). The findings proposed using contextual clues that may facilitate learning and tailoring to the older adults' literacy levels and multimedia indications.

In illustrating a step-by-step tutorial, Chi, Ahn, Dontcheva, Li, and Hartmann (2012) introduced a mixed static and video tutorial system, which automatically generated step-by-step instructions from user demonstrations. The MixT combined the static and video to create step-by-step tutorials that incorporated text, images, and several formats of video. The tutorials enabled the users to make fewer errors by allowing them to progress at their own speeds. Based on the quantitative data, the informal user's feedback suggested that MixT tutorials were as effective as manually created tutorials in helping the users complete tasks (Chi, Ahn, Dontcheva, Li, & Hartmann, 2012). In observing the users, the qualitative data included the think-aloud method and open-ended questions and presented data regarding the straightforwardness of the tutorial. According to the authors, the informal assessment proposed that automatically

generated mixed-media tutorials were as effective in helping users complete tasks as tutorials that were created manually. The authors theorized that a combination of static and video instructions could improve users' success in subsequent tutorials. The results of the questionnaire illustrated that although participants had varying opinions on the static and video tutorials, all users strongly agreed that the mixed tutorial was straightforward (Chi et al., 2012).

In researching the augmentation of a mobile device display to help older adults learn new devices, Leung (2011) conducted a comprehensive survey of older adults' learning needs and preferences for mobile devices Leung's goal focused on how one would design a system using a larger display to help older adults learn to use the smart phone. Leung presented a design for an augmented display help system called Help Kiosk for the smart phone and initiated evidence through user study that the prototype can assist older adults in learning to perform new mobile-phone tasks. In establishing the need for tutorials, the researcher noted that to the researcher's knowledge the Help Kiosk is the first system to provide real-time guidance and feedback to help people learn to use a smart phone.

Gathering Requirements for Older Adults

Gathering the requirements is a vital component that should be performed for any project and is essential for identifying the needs. In specifically examining requirements, according to Young (2002), in order for value to be added to the user, the requirement should identify the qualifications, uniqueness, or features of the system. Also, understanding user requirements is an integral part of information-systems design and is critical to the success of interactive systems (Maguire & Bevan, 2002). Additionally, Sommerville and Sawyer (1997) stated that requirements gathering is the process of discovering, documenting, and managing the

requirements for the system. Each requirement should have a unique identifier, be necessary, verifiable, attainable, unambiguous, absolute, reliable, definite, succinct, and implementation-free (Summerville & Sawyer, 1997). In the information-gathering stage, the first step in user-requirements analysis is to gather background information about the users and stakeholders, as well as the processes that are involved in the process (Maguire & Bevan, 2002). The goal of requirements gathering is to create a set of requirements that is complete, consistent and relevant and reflects what the user desires (Sommerville & Sawyer, 1997). Young, as well as Maguire and Bevan (2002), recommended several most effective requirement techniques used in research, which include interviews, brainstorming, using cases, and prototyping. In emphasizing the importance of the user-requirements specification, Maguire and Bevan stated that it is essential to institute and document the requirements, which will lead to the method of developing the system itself.

Gebauer, Tang, and Baimai (2008) identified user requirements of mobile devices for targeting mobile-business users and identified the important requirements indicators, which included voice communication, information access, and entertainment. The findings contributed to the users' needs associated with mobile technology devices and the changes in relation to ongoing technological developments (Gebauer, Tang, & Baimai). Such findings can help inform technology development and technology management, as well as inform the application of information-systems theory to mobile technology. Limitations include sample size (144 reviews) out of many thousands of reviews available online and a sampling method that included user self-selection and a large degree of interpretive freedom (Gebauer, Tang & Baimai).

In specifically focusing on older adults and requirements gathering, Rice and Carmichael (2007) noted that deriving appropriate requirements from users is an important part of the

software-design process. The authors pointed out that older adults' difficulties with the technology are a result of inexperience and unfamiliarity, which contributes to the complexity (Rice & Carmichael, 2007). Therefore, in an area in which minimal research has been obtained prior to the implementation of the requirements by the developers, it is advised that more creative and user-centered innovative methodologies be tailored toward the older adult population. By using this methodology, developers would be able to better understand what older adults desire, need and comprehend from innovative technologies.

Summary

This chapter presented a review of the literature beginning with an overview of the increase of the world's population of older adults. According to the U.S. Census Bureau (2009), as society advances through the first decade of the 21st century, population aging has emerged as a major demographic worldwide trend. Declining fertility, improved health, and longevity have generated rising numbers and proportions of the older population in most of the world (U.S. Census Bureau, 2009). Along with the increase in the world's population, the issue of technology acceptance of information technology by older adults has become a broad field of research. Additionally, facing the ongoing demographic change in the United States and the rapid proliferation of information technology, the issue of technology acceptance of information technology among older adults has become a broad field of research. In reviewing technology acceptance, Davis (1989) focused on user acceptance of information systems and identified PU and PEOU as major factors when using information systems. In examining older adults and technology acceptance, Renauld and van Biljon (2008), expanded the TAM and developed the

STAM, which offers a rationale of why many older adults never advance to the final adoption phase of the technology and thus never accept mobile technology.

One widely researched area that would allow older adults to accept technology is to ensure that IT devices accommodate older adults' needs and cognitive issues. Fisk, et al. (2009) discussed that proper attention to design will eliminate much of the frustration that older adults encounter. Additionally, attention to characteristics of design to improve usability can improve the lives of older adults. One type of IT device that can accommodate older adults and that has gained momentum in today's society is mobile technology. Plaza, Martin, Martin, and Medrano (2011) noted that mobile phones are promising tools to improve the quality of life for older adults; therefore, researchers, designers, and mobile-phone manufactures should consider the needs of older adults, when developing mobile devices.

Another type of mobile device that can facilitate older adults' quality of life is the tablet. According to Zickuhr (2013), tablet ownership is growing among older adults. However, in using the tablet or any other type of mobile device, older adults may encounter challenges. Researchers are well aware of the issue of providing assistance and are taking steps to apply some type of tutorial assistance to assist older adults in using the mobile device. Last, in order for designers to accommodate older adults, the designer should include older adults in the design of mobile devices. Gebauer, Tang, and Baimai (2008) identified the user requirements for mobile devices and how these requirements can assist developers with mobile technology.

Chapter 3

Methodology

Introduction

The research methodology entailed the gathering of the requirements for a mobile device tutorial targeted at the senior population. In focusing on older adults and the mobile device tutorial, the research questions answered what task and feature requirements older adults would need from a mobile device tutorial. The goal required the following steps: (1) adapting an existing questionnaire to the sample population; (2) pilot testing the questionnaire and making the appropriate modifications (part of validation effort); (3) based on the revised questionnaire, distributing the questionnaire to the targeted population; (4) based upon the responses to Research Questions 1 and 2, targeting a subset of the sample population to probe deeper into the responses with an in-depth interview in order to obtain qualitative data; and (5) analyzing the quantitative data (using Statistics Pro software for the quantitative portion) to identify the task and feature requirements for the mobile device tutorial.

Research Methods

A mixed method research design was employed to address the research questions, which referenced the task and feature requirements for a mobile device tutorial for older adults. Using a repeatable, structured technique, the questionnaire was used to collect the data that measured the senior adults' responses to the survey questions. The random sampling of the target

population consisted of participants from four senior activity centers. The researcher contacted all directors of the senior activity centers, who expressed an interest in working with the researcher and providing suitable participants.

Once the survey was adapted, the researcher distributed the questionnaire to a pilot sample of five respondents who validated the questionnaire. The pilot group reviewed the qualitative and quantitative questionnaires to ensure the quality and validity of the questionnaire. The pilot group was not a part of the sample population. The researcher incorporated the feedback from the pilot group into the final version of the questionnaire before it was distributed to the full set of sample respondents. The researcher gave the questionnaire to the participants in person, and the questionnaire was administered by paper and pencil. Based upon the responses to the quantitative and qualitative questionnaire regarding the task and feature portions, the researcher selected two focus groups (five in each group) from the sample population for the qualitative interview to probe further into the respondents' responses and feedback. The purpose of the focus groups was to solicit the respondents' impressions, interpretations, and opinions, as well as to delve deeper into the research topic (Sekaran, 2003). The two focus groups were comprised of 10 of the 113 respondents, which was 11.3%. Additionally, the first focus group focused on how likely the participant would seek to determine what task or feature requirements he or she desired from a mobile device tutorial. The second focus group focused on how unlikely the participant would seek to determine what task or feature requirements he or she desired from a mobile device tutorial.

Institutional Review Board Process

In order to protect the rights of and not harm the participants of the study, the researcher designed the research to ensure the approval of a rigorous review by the Institutional Review Board (IRB). The IRB also required observance of the fundamental ethical principles for the acceptance of conduct of research involving human subjects. Consequently, the IRB's approval was a prerequisite prior to the commencing of the research.

Another important element of the IRB process was that every research study that uses human participants should have an informed consent form that each participant reads and signs (Salkind, 2006). As with other institutions, the consent form was a requirement of Nova Southeastern University's IRB process. The Nova Southeastern University's IRB approval letter is located in appendix A. The consent form outlines the research title, purpose and description of the research, research contacts, time commitment, participant risks/benefits, confidentiality and privacy, and the participants' option to decline to participate. The consent form required the participants' names and signatures; however, this information could not be referenced back to the participants. Once all the elements were explained to the participants (older adults), they read and signed the consent form to participate in the study.

Also, with regard to privacy, the questionnaire did not request any personally identifiable information (PII) and all the information obtained was confidential. The researcher collected limited PII (name and telephone number) for participants who entered the raffle at the completion of the questionnaire. Once the drawings were held and each participant was notified by telephone that he or she won the raffle, the researcher destroyed the raffle tickets.

Executing the Research

In executing the research study, the hallmarks of the scientific research are most relevant to the accomplishment of the study. The hallmarks of the scientific method include purposiveness, rigor, replicability, and generalizability (Sekaran, 2003). Determining the generalizability and accuracy of the circumstances, as well as proceeding with the likelihood of replicating, is the scientific foundation of verification of a scholarly study (Creswell, 1994). The steps in the research included: (1) development of the questionnaire and validation used in the research, (2) pilot testing of the questionnaire by a selected group, (3) modifying the questionnaire based on the comments from pilot group, (4) presenting the research proposal to four directors of the senior activity centers, (5) presenting the questionnaires to the sampled population of four senior activity centers, (6) interviewing focus groups A and B, (7) performing analysis and reporting on the quantitative data, 8) performing analysis and reporting on the qualitative data, and 9) employing descriptive statistics to generate quantitative analysis.

Fisk, Rogers, Charness, Czaja, and Sharit (2009) summarized the following guidelines for including older adults in research studies. They include:

- Make sure the research sample is representative of the target population of interest, and remember that not all older people are alike.
- Clearly define participant inclusion and exclusion criteria and protocols for assessing these criteria.
- Use multiple methods for recruitment, and recruit participants from locations that are representative of the target population of interest.

• Make sure the testing environment is as stress-free as possible and minimize interfering distractions.

• Make sure the lighting conditions are optimal and that ambient noise is kept to a minimum.

• Adhere to existing guidelines for formatting text.

• Use nontechnical and familiar vocabulary in instructions, task materials, and measurement instruments.

• Eliminate highly paced task demands, and allow participants sufficient time to respond.

• Minimize the demands on working memory.

• Minimize participant burden and ensure that participants are provided with sufficient rest breaks.

• Familiarize research personnel with the basics of aging.

• When using standardized instruments, choose those that have been normed with older populations.

• Pilot test all protocols, measurement, and data-collection instruments with representative samples of older people prior to formal data collection.

Instrument Development and Validation

The researcher modified the Learning Methods for Mobile Devices Questionnaire, which Leung (2011) developed, for the study (appendix B). The researcher modified the survey to address the specific questions regarding gathering the task and feature requirements for a mobile device tutorial. The researcher received permission from Leung to use his questionnaire, Learning Methods for Mobile Devices Questionnaire (appendix C). The objectives of the

questionnaire were to comprehend older adults' needs and preferences in learning to use the mobile device, as well as classifying the designing of the most appropriate and effective learning-support resources for the senior community (Leung). The first part of the questionnaire pertained to the users' experience with mobile devices, where questions were solicited regarding the types of devices older adults use, the acquiring of a mobile device, and then abandoning it shortly. Additionally, the section delved into the users' desire to learn something new, whether the users forget how to do something, or whether the users encountered a problem or an error.

The second part of the Learning Methods for Mobile Devices Questionnaire pertained to the preferred methods and resources for learning that an older adult may prefer. The preferred-methods portion asked the user about the importance of various quantities and features that older adults may seek when using a mobile device. The features and qualities portion include the affordability, ease of access, ease of understandability, and demonstration of how to perform a task. Other methods and features focused on providing step-by-step instructions and detailed information and opportunities to perform the task. Questions regarding the resources that a mobile device may offer an older adult consisted of the device's help features, instructional manual, or IT support.

The third portion of the selected questionnaire pertained to the helpfulness of different learning devices. The helpfulness portion focused on the different learning methods and resources. The resources included the adults trying to work it out for themselves, use of the help features, instructional methods, or taking a class. Other resources included searching the Internet for assistance or asking friends, children, the younger generation, or colleagues for assistance.

Pilot Participant Group

The purpose of the pilot group was to review the questionnaire in order to ensure soundness, comprehensiveness, and clarity of the questionnaire. In selecting the pilot group, the selection criteria included the willingness of the participant, the age range, and mobile device usage. After the researcher's review of the possible participants, the researcher approached five older adults to participate in the pilot study for the review of the questionnaire based on the selection criteria. The pilot group performed a thorough review of the instrument and provided comments and recommendations. The specific comments and recommendations are located in the results section of the report. The researcher modified the questionnaire based on the recommendations from the pilot group.

Research Proposal Presented to Senior Activity Directors

The researcher contacted by e-mail or telephone and personally met and received approval from four senior activity centers, located in Prince George's County, Maryland. The researcher presented a one-page proposal of the study, the consent form, and the questionnaire to each director. The directors and the researcher agreed upon the dates and time that the researcher would perform the study at the specified center. In an effort to attract the participation of the older adults, the researcher developed posters for each of the senior activity centers. The posters included the dates and times when the researcher would personally be at the location to present the questionnaires. To thank the directors of the centers, the researcher presented each of the centers with a 14-inch poinsettia plant.

Questionnaire

The researcher personally supplied the modified questionnaire to each participant at each location. The quantitative portion of the questionnaire solicited the basic demographic information, such as age range, gender, highest level of education, housing, and work status. Following the demographic information, the questionnaire asked the participant questions pertaining to their experience with mobile devices and which types they used regularly, how often they experienced challenges, how often they learned something new, and their level of experience and years using a mobile device. The next section of the questionnaire pertained to the preferred method and resources for learning, such as affordability, whether it was easy to access and understand, friendly, and patient. The next section asked the participant to rank how likely he or she was to use the various types of learning-device methods and resources. Following this request, the research questions requested that the participant determine which task and feature requirements older adults would desire from the mobile device tutorial. The last quantitative question solicited the participant to rank how helpful the methods and resources would be in learning to use the mobile device. The qualitative questions pertained to a tutorial system for teaching the participant how to use the mobile device and queried about the benefits, drawbacks, and success with a tutorial. Table 2 provides the questionnaire sections, to include the sections, section titles, and all components of the questionnaire. For Table 2, Section 2, experience with mobile devices, "exclude the iPad" refers to the participants who do not have access or own an iPad; the participants have other types of mobile devices, such as a smartphone.

Table 2

Questionnaire Sections

Section	**Section Title**	**Components**
1	Demographic Information	• Age range • Highest level of education • Gender • Housing status • Current work status
2	Experience with Mobile Devices	• Types of mobile devices used regularly • Acquired mobile device then abandoned • Experience: ▪ Learn to do something (exclude iPad) ▪ Forget how to do something (exclude iPad) ▪ Encounter a problem (exclude iPad) ▪ Want to learn something on iPad ▪ Forget how to do something on iPad ▪ Encounter a problem on iPad • Characterize yourself – use a mobile device ▪ No experience ▪ Beginner ▪ Novice user ▪ Intermediate user

		▪ Advanced user • Years using a mobile device
3	Preferred Methods and Resources for Learning	• Qualities and features of different methods/resources for learning to use a mobile device ▪ Very affordable ▪ Easy to access ▪ Easy to understand ▪ Friendly and patient ▪ Interactive ▪ Learn by myself • Learning device methods and resources to learn to use a mobile device (rank top 7) • Easy access to all the methods and resources (three preferred choices) • Tutorial learning methods, gather/determine what task requirements older adults would desire ▪ Assistance with e-mail ▪ Assistance with help care ▪ Assistance with shopping ▪ Assistance with researching restaurants ▪ Assistance with financial information • Tutorial learning methods, gather/determine what feature requirements older adults would desire ▪ Accessing contacts

		▪ Accessing reminders ▪ Accessing photos ▪ Accessing camera ▪ Accessing FaceTime
4	Helpfulness of Different Learning Methods and Resources	• How helpful would the methods and resources be in learning to use a mobile device (rank the top 7 selections)? • What methods and resources (listed above) do you think would be better to help you retain what you have learned (three preferred methods)?
5	Mobile device Tutorial System for Learning	• What benefits do you think a tutorial system would have over getting help from someone? • What drawbacks do you think this type of tutorial would have over getting help from someone? • Would you use such a tutorial to learn to use a mobile device? • How would you like the tutorial to be designed? • Have you ever used a tutorial before? • Did you have success with a tutorial? • How long did it take you to become familiar with the tutorial?

Focus Group

Based on the responses from the sampled population, the researcher selected ten participants for the focus group to obtain the respondents' impressions, interpretations, and opinions regarding task or feature requirements for mobile devices. The researcher selected

five participants (Focus Group A) who indicated that they were very likely (7), slightly likely (6), or likely (5) to desire the task or feature requirements for a mobile device. Specifically, the researcher queried respondents regarding how likely they would use a mobile device tutorial for assistance with e-mail, health-care information, shopping, researching restaurants, and financial information. The feature requirements pertained to how likely they would use a mobile device tutorial for assistance with accessing contacts, reminders, photos, camera, and FaceTime. The questionnaire for Focus Group A, is located at appendix D.

Conversely, the researcher selected five participants (Focus Group B) who indicated that they were very unlikely (3), slightly unlikely (2), or unlikely (1) to desire the task or feature requirements for a mobile device. Specifically, the researcher queried respondents regarding how unlikely they would use a mobile device tutorial for assistance with e-mail, health-care information, shopping, researching restaurants, and financial information. The feature requirements pertained to how unlikely they would use a mobile device for assistance with accessing contacts, reminders, photos, camera, and FaceTime. The questionnaire for Focus Group B, is located at appendix E.

Resource Requirements

Study Participants and Sample Size

Incentives for the participants included 50 drawings of $5 gift certificates to grocery stores within the local area. An additional $5 gift certificate was provided to the pilot participants, as well as the participants who took part in the focus-group qualitative survey. The incentives inspired the senior adult to divulge their views and opinions regarding mobile device

tutorials, as well as their demographic information, such as age range, educational level, gender, housing, and current work status.

In order to demonstrate the mobile device tasks and features to the older adults, a mobile device was required. The researcher selected the Apple iPad version 4 mobile device to illustrate the requirements because of its ease of use and familiarity (Werner & Werner, 2012; Werner, Werner, & Oberzaucher, 2012). The iPad device is roughly the size of a sheet of paper and weighs 1.5 pounds. The screen is a 9.7-inch LED backlit glossy multi-touch screen capable of displaying up to 1024x768 pixel resolution. The screen size and multi-touch screen accommodated the older adults' cognitive needs, such working memory, perceptual speed, motor control, and visual search.

Summary

The research methodology provided a comprehensive narrative of attributes of the design and procedures to be used for gathering the task and feature requirements for the mobile device tutorial study. The methodology process included the distribution of a mobile device quantitative and qualitative questionnaire to a pilot group of older adults, to ensure the caliber and rigor of the instrument. Upon the completion of the pilot study, the researcher conducted a field experiment at four local community senior activity centers where the survey was administered to a sample population of older adults. The researcher provided incentives to encourage the participation of the older adults. Based upon the responses from the sample population, a portion of that population took part in a qualitative interview to obtain further insight into the responses the participants provided. The researcher used the descriptive statistical method for measuring, analyzing, and validating the questionnaire and interview data.

Upon the completion of the analysis, results and recommendations are provided regarding the task and feature requirement needed for a mobile device tutorial for older adults.

Chapter 4

Results

Introduction

This chapter begins with an overview of the pilot study and the modifications applied to the older adults and mobile device questionnaire, as a result of the pilot study. The purpose of the pilot study was to ensure the validity and reliability of the questionnaire. The pilot study discussion is followed by the administration of the research study to a sample population of 113 senior citizen adults, ages 65–91, at four senior activity centers. The researcher performed quantitative and qualitative analysis to ascertain demographic data of the total population, as well as other components of the questionnaire. To further obtain analytical data, the researcher selected two focus groups, to provide additional qualitative data, from the sample population. Using the Likert scale, for focus group A, five participants were chosen, who selected they were (using the Likert scale 5, 6, and 7) very likely to desire the task or feature requirements from a mobile device tutorial. For focus group B, five participants were chosen, who selected they were (using the Likert scale 1, 2 and 3) very unlikely to desire the task or feature requirements from a mobile device tutorial. After the participant completed the questionnaire, the researcher reviewed the questionnaire, specifically paying attention to the responses of the question 14 regarding seeking to gather/determine what task requirements older adults would desire from a mobile device tutorial and question 15 regarding seeking to gather/determine what feature requirements older adults would desire from a mobile device tutorial. If the participant selected

very likely or very unlikely, then the researcher invited the participant, to be interviewed to probe further regarding the participant's views and opinions regarding the task and feature requirements. The chapter concludes with the research findings and summary.

Administration of the Pilot Study

Five older adults participated in the pilot study to assess the comprehensibility of the instrument. The pilot study included the review of the overall questionnaire to include the understandability and clarity of the questions. The demographic information of the pilot adults was comprised of the age range from 65 to 82 (four females and one male). Four of the pilot participants possessed master's degrees in the educational field, and one possessed a doctorate in education. Each participant indicated that the amount of time to complete the questionnaire was 35 to 40 minutes. Personal comments from the pilot participants included:

- "Demographic information—age, education, gender, housing—good; I would add under work status—Retired/part-time employment."
- "Questionnaire was bit long, especially for the elderly. The elderly tend to shy away from these devices anyway."
- "Questions 12 and 13 a bit redundant."
- "Questions 14 and 15, limit choices (1–3 or 1–5)."
- "Question 17 not necessary; you have the rank order in question 16."
- "Appendix B is good, and all areas are covered thoroughly. I think it is somewhat lengthy. If older adults have never used a tutorial system on their own."

To compensate for the length of the survey and to ensure the sample population was achievable, the researcher increased the sample sites and visits and increased the number of

drawings for incentives. Last, because the researcher visited each site twice, the researcher indicated that the participant could take the questionnaire home and return the questionnaire at the next visit. Further, if the participant received the questionnaire on the final visit, the researcher indicated that the participant could return it to the center and the researcher would retrieve it from the senior center. On two occasions, two of the senior centers mailed the researcher the questionnaires the participants had completed.

Administration of the Research Study

From November 11, 2013 to December 11, 2013, the researcher visited four senior activity centers in Prince George's County, Maryland. The researcher spent approximately 70 cumulative hours among the locations. A total of 113 participants volunteered to participate in the study by taking the questionnaire, which is located at appendix B. Further, ten of the 113 participants, based on the responses to the survey, agreed to be interviewed, to further obtain additional qualitative data. Focus group A, indicated how likely the respondent would use a mobile device tutorial and focus group B, indicated how unlikely the respondent would use a mobile device tutorial.

In the four classroom settings, after the participants completed the questionnaires, the researcher answered questions from the participants regarding mobile devices and also demonstrated the iPad tasks and features, which were discussed in the questionnaire, as well as other iPad tasks and features. Many of the participants brought their iPads and requested assistance with various mobile device issues, which the researcher addressed. In all of the settings, the researcher provided demonstrations of the tasks and features of the iPad and answered questions that the participant asked pertaining to the questionnaire. As a handout and a

framework for a possible tutorial, the researcher distributed copies of the iPad User Guide for the basic features for contacts, FaceTime, reminders, photos, and camera. The researcher did not in any way bias or influence any participants' answers to the questionnaire.

Total Population Quantitative Analysis

Quantitative data is any data that is in numerical form such as statistics or percentages. For the study, questions were asked to gather a sample of numerical data from participants to answer the specific questions pertaining to mobile devices. The total population for each of the quantitative analysis components are detailed as follows.

Demographics

Frequencies and Percentages

For age range, 37 (32.7%) participants fell into the category of 65–70; 25 (22.1%) participants fell into the category of 71–75; 22 (19.5%) participants fell into the category of 76–80; 16 (14.2%) participants fell into the category of 81–85; one (0.9%) participant fell into the category of 85–90; eight (7.1%) participants fell into the category of 86–90; and four (3.5%) participants fell into the category of 91–100. For the highest level of education completed, 11 (9.7%) participants fell into the category of high school; 22 (19.5%) participants fell into the category of some college; 30 (26.5%) participants fell into the category of BA; 47 (41.6%) participants fell into the category of graduate; and three (PhD; 2.7%) participants fell into the category of professional degree. For gender, 72 (63.7%) participants fell into the category of female and 41(36.3%) participants fell into the category of male. For housing, 14 (12.4%) participants fell into the category of care facility; two (1.8%) participants fell into the category of

other; 84 (74.4%) participants fell into the category of private household (living independently); and 13 (11.5%) participants fell into the category of private household, living with children. For work status, one (0.9%) participant fell into each of the variables of full time, full-time/retired, and part-time; 94 (83.2%) participants fell into the category of retired; and 16 (14.2%) participants fell into the category of retired/part-time. Table 3 presents frequencies and percentages for nominal variables.

Mobile Devices Regularly Used

Frequencies and Percentages

In examining the mobile devices regularly used, the majority of the total population, 75 (66.4%) participants, currently use a cell phone and only 2 (1.8%) have not used a cell phone. Following the use of the cell phone, 60 (53.1%) participants, currently use a smart phone and 51 (45.1%) participants have not used a smartphone. Subsequent, to the smart phone, 58 (51.3%) participants, currently use an ebook and 48 (42.5%) participants have not used an ebook. For iPad use, 40 (35.4%) participants, currently use an iPad and 73 (64.6%) participants, have not used an iPad. Table 4 presents frequencies and percentages for nominal variables for mobile devices regularly used.

Acquired Mobile Device and Abandoned it Shortly

Frequencies and Percentages

For acquired a mobile device and abandoned it shortly thereafter, 102 (90.3%) participants fell into the category of no. Yes comments regarding the (a) iPad mobile device included: “used my daughter’s iPad, but it was too complicated – no one to help me remember

Table 3

Demographic Information: Frequencies and Percentages for Nominal Variables, n=113

Category	*n*	Percentage
Age Range		
65 – 70	37	32.7%
71 – 75	25	22.1%
76 – 80	22	19.5%
81 – 85	16	14.2%
85 – 90	1	0.9%
86 – 90	8	7.1%
91 – 100	4	3.5%
Education		
High School	11	9.7%
Some College	22	19.5%
BA	30	26.5%
Graduate	47	41.6%
Professional Degree	3	2.7%
Gender		
Female	72	63.7%
Male	41	36.3%
Housing		
Care Facility	14	12.4%
Private Household	84	74.4%
PH living w/ Child	13	11.5%
Other	2	1.8%
Work Status		
Full-Time	1	0.9%
Full-Time/Retired	1	0.9%
Part-Time	1	0.9%
Retired	94	83.2%
Retired/Part-Time	16	14.2%

Table 4

Mobile Devices Regularly Used: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
Mobile Device iPad		
Currently Use	40	35.4%
Have Not Used	73	64.6%
Mobile Device Cell Phone		
Currently Use	75	66.4%
Used in the Past	36	31.9%
Have Not Used	2	1.8%
Mobile Device Smart Phone		
Currently Use	60	53.1%
Used in the Past	2	1.8%
Have Not Used	51	45.1%
Mobile Device PDA		
Currently Use	15	13.3%
Used in the Past	24	21.2%
Have Not Used	74	65.5%
Mobile Device eBook		
Currently Use	58	51.3%
Used in the Past	7	6.2%
Have Not Used	48	42.5%
Mobile Device Other		
No	111	98.2%
Yes	2	1.8%

when I forgot; electronic calendar – too complicated for me, want to buy an iPad and learn how to use it, including Skype or FaceTime, need more income (finances) to be able to do that; it was too erratic; overly sensitive to input ‘taps’; it didn’t do anything for me that my laptop didn’t, too hard to find the appropriate action buttons (icons, etc.)”; (b) smart phone comments included: “it

was too complicated; after a short time, it was determined that I did not use the device enough to justify the additional cost"; (c) PDA comments included, "had a cell phone and a PDA; I discarded my PDA to carry only one device; a smartphone; too expensive with my monthly charges for my needs, hope for one for emergency only and buy minutes"; and (d) e-book reader (Nook) comments included, "bought a 'high tech' Nook and can't figure out how to use it; when I go to Borders, the young kids don't know how to teach me how to use it; when I went to the library to ask them how to get library books on it, I was given a website they use; even my son (who has a Nook) couldn't get it to work, he can on his, but lives in a different county; I get e-mail, but I can't get it to delete, reply, etc.; I am dyslexic with sequencing and spelling (sounds) being major problems; I have learned to compensate and go for years, but tech things blow my mind; I get frustrated and throw in the sponge; often spell words wrong and then can't complete the task." Table 5 presents acquired mobile devices and then abandoned it shortly thereafter. The table illustrates the population and the percentages for the nominal variables.

Experience: Learn, Forget, and Problems with Mobile Device

Frequencies and Percentages

For want to learn to do something on my mobile device (excluding iPad), the majority, 28 (24.5%) participants fell into the category of 1 time a week and 25 (22.1%) were in the category of 1 – 3 times a week. For forget how to do something on my mobile device (excluding iPad), 34 (30.1%) participants fell into the classification of 1 time a week and 32 (28.3%) fell into the category of 1 -3 times a month. For encountered a problem on my mobile device (excluding iPad), the majority, 41 (36.3%) participants were in the category of 1 times a week and 24

Table 5

Acquired Mobile Devices: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
Acquired then Abandoned		
No	102	90.3%
Yes	11	9.7%

(21.2%) participants fell into the category of 1-3 times a month. Next, for want to learn to do something on iPad, the majority, 64 (56.6%) participants were in the classification of 1+ times a day and 12 (10.6%) participants fell into the category of 1-3 times a month. For forget how to do something on iPad, the majority, 68 (60.2%) participants were in the category of 1+ times a day and 11 (9.7%) participants fell into the category of 1 time a week. For a problem encountered on the iPad, the majority, 68 (60.2%) participants were in the classification of 1+ times a day and 14 (12.4%) participants fell into the category of 1 time a week. Table 6 presents an excerpt of the percentages and the nominal variables for experience: learn, forget, and problems with mobile devices. The complete data for experience: learn, forget, and problems with mobile devices: frequencies and variables for nominal variables can be found in Appendix F, Table F6.

Characterize Yourself in Terms of Being Able to Use a Mobile Device

Frequencies and Percentages

For smart phones, the majority, 51 (45.1%) participants were in the classification of no experience and 23 (20.4%) participants fell into the classification of intermediate. For use iPad, the majority, 67 (59.3%) participants were in the category of no experience and 17 (15.0%)

Table 6 (excerpt table – complete table located at Appendix F, Table F6)

Experience: Learn, Forget, and Problems with Mobile Devices: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
Want to Learn (Excluding the iPad)		
0<1 Time a Month	8	7.1%
1–3 Times a Month	25	22.1%
1 Time a Week	28	24.5%
2–4 Times a Week	11	9.7%
1 Time a Day	20	17.7%
1+ Times a day	1	0.9%
Do Not Have iPad	20	17.7%
Forgot to Do Something (Excluding the iPad)		
0<1 Time a Month	4	3.5%
1–3 Times a Month	32	28.3%
1 Time a Week	34	30.1%
2–4 Times a Week	11	9.7%
1 Time a Day	17	15.0%
1+ Times a day	1	0.9%
Do Not Have iPad	14	12.4%
Encountered a Problem (Excluding the iPad)		
0<1 Time a Month	6	5.3%
1–3 Times a Month	24	21.2%
1 Time a Week	41	36.3%
2–4 Times a Week	10	8.8%
1 Time a Day	15	13.3%
1+ Times a day	2	1.8%
Do Not Have iPad	15	13.3%

participants fell into the category of intermediate. For use eBook, the majority, 51 (45.1%) participants fell into the category of no experience and 22 (19.5%) participants were in the grouping of beginner and intermediate. For used desktop, laptop, and netbooks, the majority, 55

(48.7%) participants fell into the classification of intermediate and 31 (27.4%) participants fell into the category of advanced. Table 7 presents characterize yourself – frequencies and percentages for nominal variables.

Table 7

Characterize Yourself: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
Use Smart Phone		
No Experience	51	45.1%
Beginner	22	19.5%
Novice	12	10.6%
Intermediate	23	20.4%
Advanced	5	4.4%
Use iPad		
No Experience	67	59.3%
Beginner	11	9.7%
Novice	15	13.3%
Intermediate	17	15.0%
Advanced	3	2.7%
Use eBook		
No Experience	51	45.1%
Beginner	22	19.5%
Novice	12	10.6%
Intermediate	22	19.5%
Advanced	6	5.3%
Use Desktop, Laptop, & Netbook		
No Experience	1	0.9%
Beginner	7	6.2%
Novice	19	16.8%
Intermediate	55	48.7%
Advanced	31	27.4%

Years Having Used a Mobile Device

Frequencies and Percentages

For years having used a mobile device, the majority, 36 (31.9%) participants fell into the category of 6–10 years and 31 (27.4%) participants fell into the category of 2–5 years. Table 8 presents years having used mobile devices – frequencies and percentages for nominal variables.

Table 8

Years Having Used Mobile Devices – Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
Years Having Used Mobile		
0–1 Years	17	15.0%
2–5 Years	31	27.4%
6–10 Years	36	31.9%
11+ Years	29	25.7%

Qualities and Features for Learning to Use a Mobile Device

Means and Standard Deviations

For how important are each of the qualities and features, the participant responses ranged from 1.00 to 6.00. The highest average response that mobile devices are easy to understand was 5.29 (standard deviation = 1.10) and easy to access was 5.25 (standard deviation = 1.14). Following easy to access for the qualities and features for learning to use a mobile device, friendly and patient was the next preference (5.14, standard deviation = 1.21). Table 9 presents qualities and features for learning to use a mobile device – means and standard deviations for continuous variables.

Table 9

Qualities and Features for Learning to Use a Mobile Device: Means and Standard Deviations for Continuous Variables

Category	*Mean*	*Standard Deviation*
Very Affordable	4.59	1.58
Easy to Access	5.25	1.14
Easy to Understand	5.29	1.10
Friendly and Patient	5.14	1.21
Interactive	5.04	1.14
Allows Me to Learn by	4.69	1.44

Likelihood to Use Learning Device Methods and Resources

Frequencies and Percentages

Question 12 asked how likely respondents are to use any of the following learning device methods and resources to learn to use a mobile device. The participants were asked to rank the order of the top seven preferences. The findings for the first choice of how likely the respondents are to use a mobile device, the top choices were, 18 (15.9%) participants were in the category of work it out by trial/error; 17 (15.0%) participants fell into the category of use device manual; 16 (14.2%) participants were in the classification of talk to children and 15 (13.3%) participants were in the category of talk to spouse. For the second choice of how likely the respondents are to use a mobile device, the major preferences were, 18 (15.9%) participants fell into the category of use device help; 17 (15.0%) participants fell into the category of use device manual; 16 (14.2%) participants fell into the category of talk to children and 12 (10.6%) participants were in the category of search the Internet. For the third choice of how likely the respondents are to use a mobile device, the top preferences were, 16 (14.2%) participants fell into the grouping of use device tutorial, 15 (13.3%) participants were in the grouping of take a

class; 14 (12.4%) participants fell into the category of use device help and 12 (10.6%) participants fell into the category of work it out by trial/error. For the fourth choice of how likely the respondents are to use a mobile device, the major selections were, 16 (14.2%) participants were in the category of phone customer support; 14 (12.4%) participants fell into the variables of search the Internet and use device tutorial and 13 (11.5%) participants were in the classification of talk to spouse. For the fifth choice of how likely the respondents are to use a mobile device, the highest selections were, 14 (12.4%) participants were in the category of work it out by trial/error and 13 (11.5%) participants were in the variables of take a class and use device help. Table 10 presents an excerpt of the likelihood to use learning device methods and resources – frequencies and percentages for nominal variables. The complete data of the likelihood to use learning device methods and resources for the percentages of the nominal variables can be found in Appendix F, Table F10. Table 11 illustrates which items are in the top five choices for the likelihood to use learning device methods and resources.

Easy Access to All Methods and Resources: Preferred Choices

Frequencies and Percentages

Question 13 asked the participants if they had easy access to all the methods and resources listed in Question12, which would be the three preferred choices for learning to use a mobile device. The findings for the first preferred method, the top selections were, 18 (15.9%) participants were in the variables of talk to children and use device manual and 16 (14.2%) participants fell into the category of work it out by trial/error. Following the work it out by

Table 10 (excerpt table – complete table of Likelihood to use learning device methods and resources for the percentages of the nominal variables can be located in Appendix F, Table F10)

Likelihood to Use Learning Device Methods and Resources: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
First Choice		
Work it Out by Trial/Error	18	15.9
Use Device Manual	17	15.0
Talk to Children	16	14.2
Talk to Spouse	15	13.3
Use Device Help	14	12.4
Second Choice		
Use Device Help	18	15.9
Use Device Manual	17	15.0
Talk to Children	16	14.2
Search the Internet	12	10.6
Use Device Tutorial	10	8.8
Third Choice		
Use Device Tutorial	16	14.2
Take a Class	15	13.3
Use Device Help	14	12.4
Work it Out by Trial/Error	12	10.6
Use Device Manual	10	8.8
Fourth Choice		
Phone Customer Support	16	14.2
Search the Internet	14	12.4
e Device Tutorial	14	12.4
Talk to Spouse	13	11.5
Work it Out by Trial/Error	12	10.6
Fifth Choice		
Work it Out by Trial/Error	14	12.4
Take a Class	13	11.5
Use Device Help	13	11.5
Search the Internet	11	9.7

Table 11

Likelihood to Use Learning Device Methods and Resources: Top Five Choices, n = 113

Category	1st Place	2nd Place	3rd Place	4th Place	5th Place
Work it Out by Trial/Error	1st choice	not in top 5	4th choice	5th choice	1st choice
Use Device Manual	2nd choice	2nd choice	5th choice	not in top 5	not in top 5
Talk to Children	3rd choice	3rd choice	not in top 5	not in top 5	5th choice
Talk to Spouse	4th choice	not in top 5	not in top 5	4th choice	not in top 5
Use Device Help	5th place	1st place	3rd place	not in top 5	2nd choice
Search the Internet	not in top 5	4th choice	not in top 5	2nd choice	4th choice
Take a Class	not in top 5	not in top 5	2nd choice	not in top 5	2nd choice
Use Device Tutorial	not in top 5	5th choice	1st choice	2nd choice	not in top 5
Talk to my Generation	not in top 5	not in top 5	not in top 5	not in top 5	not in top 5
Talk to Younger Generation	not in top 5	not in top 5	not in top 5	not in top 5	not in top 5
Phone Customer Support	not in top 5	not in top 5	not in top 5	1st choice	not in top 5
Talk to Colleague	not selected	not in top 5	not in top 5	not in top 5	not in top 5
Other (talk to Verizon Store)	not in top 5	not selected	not selected	not selected	not selected

trial/error, 15 (13.3%) participants fell into the category of take a class, 12 (10.6%) participants fell into the category of use device help and 10 (8.8%) participants were into the category of talk to spouse (8.8%). For the second preferred method, 24 (21.2%) participants were in the category of use device help; 16 (14.2%) participants were in the classification of use device manual; and 14 (12.4%) participants fell into the category of talk to children. Following talk to children, 11 (9.7%) participants fell into the category of take a class and 10 (8.8%) participants fell into the variables of search the Internet and talk to younger generation. For the third preferred method, 15 (13.3%) participants were in the variables of use device tutorial and work it out by trial/error; 13 (11.5%) participants fell into the variables of phone customer support and use device help; 12 (10.6%) participants fell into the grouping of use device manual and 11 (9.7%) participants fell into the variables of talk to younger generation and take a class. Table 12 presents an excerpt of the easy access to all methods and resources – preferred choices – frequencies and percentages

for nominal variables. The complete data for the easy access to all methods and resources: preferred choices: frequencies and percentages for nominal variables can be found in Appendix F, Table F12. Additionally, table 13 shows the top three choices for the easy access to all methods and resources – preferred choices.

Table 12 (excerpt table – complete table located at appendix F, Table F12)

Easy Access to All Methods and Resources: Preferred Choices: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
First Preferred Method		
Talk to Children	18	15.9
Use Device Manual	18	15.9
Work it Out by Trial/Error	16	14.2
Take a Class	15	13.3
Use Device Help	12	10.6
Second Preferred Method		
Use Device Help	24	21.2
Use Device Manual	16	14.2
Talk to Children	14	12.4
Take a Class	11	9.7
Search the Internet	10	8.8
Third Preferred Method		
Work it Out by Trial/Error	15	13.3
Use Device Tutorial	15	13.3
Phone Customer Support	13	11.5
Use Device Help	13	11.5
Use Device Manual	12	10.6

Task Requirements

Means and Standard Deviations

Table 14 shows the means and standard deviation for the five tasks (e-mail, health, shopping, restaurants, and financial) requirements. The means ranged from 3.64 to 4.40; e-mail had the highest mean of 4.40 and the mean difference is 3.96. The standard deviation ranged from 1.95 to 2.31, with financial having the largest standard deviation of 2.31.

Table 13

Easy Access to All Methods and Resources Preferred Choices: Top Three Choices, n = 113

Category	1st Preferred Method	2nd Preferred Method	3rd Preferred Method
Talk to Children	1st choice	3rd choice	not in top 5
Use Device Manual	1st choice	2nd choice	3rd choice
Work it Out by Trial/Error	2nd choice	not in top 5	1st choice
Take a Class	3rd choice	4th choice	4th choice
Use Device Help	4th choice	1st choice	2nd choice
Talk to Spouse	5th choice	not in top 5	not in top 5
Use Device Tutorial	not in top 5	not in top 5	1st choice
Search the Internet	not in top 5	5th choice	not in top 5
Phone Customer Support	not in top 5	not in top 5	2nd choice
Talk to my Generation	not in top 5	not in top 5	5th choice
Talk to Work Colleagues	not in top 5	not in top 5	not in top 5
Talk to Younger Generation	not in top 5	5th choice	4th choice

Frequencies and Percentages – Task

For task other, 92 (81.4%) participants fell into the category of no, where 21 (18.6%) participants fell into the category of yes. Major responses included: GPS, Facebook, traveling, language translation, Siri, auto roadside assistance, and genealogy. Table 15 presents task requirements – frequencies and percentages for nominal variables.

Table 14

Task Requirements: Means and Standard Deviations for Continuous Variables

Task Category	*Mean*	*Standard Deviation*
E-mail	4.40	2.05
Health	4.19	2.09
Shopping	3.91	2.03
Restaurant	3.67	1.95
Financial	3.64	2.31

Table 15

Task Requirements: Frequencies and Percentages for Nominal Variables, n = 113

Task Variables	*n*	Percentage
Task Other		
No	92	81.4
Yes	21	18.6

Feature Requirements

Table 16 shows the means and standard deviation for the five feature (contacts, reminders, photos, camera, and FaceTime) requirements. The means ranged from 3.46 to 4.21; photo had the highest mean of 4.21. The mean difference is 3.93. The standard deviation ranged from 1.99 to 2.21, with contacts having the largest standard deviation of 2.21.

Frequencies and Percentages - Features

For feature other, 99 (87.6%) participants fell into the category of no. Fourteen (12.4%) participants fell into the category of yes. Major responses included: cooking, foreign language,

Siri, music reader, video calls, and bill paying. Table 17 presents feature requirements – frequencies and percentages for nominal variables.

Table 16

Features Requirements: Means and Standard Deviations for Continuous Variables

Feature Category	*Mean*	*Standard Deviation*
Contacts	4.03	2.21
Reminders	3.86	2.02
Photos	4.21	1.99
Camera	4.13	2.04
FaceTime	3.46	2.12

Table 17

Feature Requirements: Frequencies and Percentages for Nominal Variables, n = 113

Feature Variables	*n*	Percentage
Feature Other		
No	99	87.6
Yes	14	12.4

Helpful Methods and Resources: Learning a Mobile Device

Frequencies and Percentages

Question 16 asked how helpful the following methods and resources would be for learning to use a mobile device. The participants were asked to rank in order the top seven selections. For the first choice, how helpful would the methods and resources be, the top choices were, 22 (19.5%) participants fell into the category of use device manual; 19 (16.8%) participants fell into the category of work it out by trial/error and 17 (15.0%) participants fell into the variables of use device help and talk to children. For the second preference, how helpful would the methods and resources be, the top choices were, 18 (15.9%) participants fell into the

category of use device manual; 17 (15.0%) participants fell into the category of use device help and 15 (13.3%) participants fell into the category of talk to children. For the third choice, how helpful would the methods and resources be, the top choices were, 18 (15.9%) participants fell into the category of phone customer support; 15 (13.3%) participants fell into the category of work it out by trial/error and 12 (10.6%) participants fell into the variables of use device help and talk to younger generation. For the fourth option, how helpful would the methods and resources be, the highest choices were, 19 (16.8%) participants fell into the category of use device tutorial; 16 (14.2%) participants fell into the category of take a class and 11 (9.7%) participants fell into the category of use device help. For the fifth category, how helpful would the methods and resources be, the top choices were, 16 (14.2%) participants fell into the category of search the Internet; 15 (13.3%) participants fell into the category of take a class and 12 (10.6%) participants fell into the category of use device help. For the sixth selection, how helpful would the methods and resources be, the top choices were, 14 (12.4%) participants fell into each of the variables of work it out by trial/error, use device help, and search the Internet; 12 (10.6%) participants fell into the category of talk to children and 11 (9.7%) participants were in the variables of talk to my generation and phone customer support. For the seventh category, how helpful would the methods and resources be, the highest choices were, 16 participants (14.2%) fell into the category of work it out by trial/error; 14 (12.4%) participants fell into the category of use device tutorial and 12 (10.6%) participants were in the variables of talk to younger generation and phone customer support. Table 18 presents an excerpt for the helpful methods and resources – frequencies and percentages for nominal variables. The complete data for helpful methods and resources: frequencies and percentages for nominal variables can be found in Appendix F, Table F18. The top five choices for helpful methods and resources are located at table 19.

Table 18 (excerpt table – complete table located at Appendix F, Table F18).

Helpful Methods and Resources: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
First Choice		
Use Device Manual	22	19.5%
Work it Out by Trial/Error	19	16.8%
Use Device Help	17	15.0%
Talk to Children	17	15.0%
Talk to Spouse	10	8.8%
Second Choice		
Use Device Manual	18	15.9%
Use Device Help	17	15.0%
Talk to Children	15	13.3%
Use Device Tutorial	13	11.5%
Talk to My Generation	10	8.8%
Third Choice		
Phone Customer Support	18	15.9%
Work it Out by Trial/Error	15	13.3%
Use Device Help	12	10.6%
Talk to Younger Generation	12	10.6%
Search the Internet	11	9.7%
Use Device Manual	11	9.7%
Fourth Choice		
Use Device Tutorial	19	16.8%
Take a Class	16	14.2%
Use Device Help	11	9.7%
Talk to Children	10	8.8%
Search the Internet	10	8.8%
Talk to Younger Generation	10	8.8%

Table 19

Helpful Methods and Resources: Learning a Mobile Device – Top Five Choices, n = 113

First Choice	1st Place	2nd Place	3rd Place	4th Place	5th Place
Use Device Manual	1st choice	1st choice	4th choice	5th choice	not in top 5
Work it Out by Trial/Error	2nd choice	5th choice	2nd choice	not in top 5	not in top 5
Use Device Help	3rd choice	2nd choice	3rd choice	3rd choice	3rd choice
Talk to Children	3rd choice	3rd choice	not in top 5	4th choice	not in top 5
Talk to Spouse	4th choice	not in top 5	not in top 5	not in top 5	not in top 5
Search the Internet	5th choice	not in top 5	4th choice	4th choice	1st choice
Talk to my Generation	not in top 5	5th choice	5th choice	not in top 5	not in top 5
Take a Class	not in top 5	not in top 5	not in top 5	2nd class	2nd choice
Use Device Tutorial	not in top 5	4th choice	not in top 5	1st choice	4th choice
Phone Customer Support	not in top 5	not in top 5	1st choice	not in top 5	4th choice
Talk to Younger Generation	not in top 5	5th choice	3rd choice	4th choice	5th choice
Other (talk to Verizon rep)	not in top 5	not in top 5	not in top 5	not in top 5	not in top 5

Helpful Methods and Resources: Preferred Choices

Frequencies and Percentages

Question 17 asked the participants to identify the first three preferred methods, as well as which resources (listed in question 16) would be better to help participants retain what they had learned. For the first preferred method, the top choices were, 24 (21.2%) participants were in the category of work it out by trial/error; 19 (16.8%) participants fell into the category of talk to children; 14 (12.4%) participants fell into the variables of use device help and use device manual and 13 (11.5%) participants fell into the category of take a class. For the second preferred method, the highest choices were, 22 (19.5%) participants fell into the category of use device help; 17 (15.0%) participants fell into the category of use device manual; 12 (10.6%) participants fell into the category of talk to children and 10 (8.8%) participants were in the variables of work it out by trial/error and talk to younger generation. For the third preferred method, the top choices were, 13 (11.5%) participants fell into each of the variables of use device manual, use

device help, phone customer support, and work it out by trial/error; 11 (9.7%) participants fell into the category of use device tutorial; 10 (8.8%) participants fell into the category of talk to younger generation and 9 (8.0%) participants were into the variables of search the Internet and talk to my generation. Table 20 presents an excerpt of the helpful methods and resources preferred choices – frequencies and percentages for nominal variables. The complete data for helpful methods and resources: preferred choices: frequencies and percentages for nominal variables can be found in Appendix F, Table F20. Additionally, table 21 shows which items are the top three choices, for helpful methods and resources – preferred choices.

Table 20 (excerpt table – complete table located at Appendix F, Table F20)

Helpful Methods and Resources: Preferred Choices: Frequencies and Percentages for Nominal Variables, n = 113

Category	*n*	Percentage
First Preferred Method		
Work it Out by Trial/Error	24	21.2%
Talk to Children	19	16.8%
Use Device Help	14	12.4%
Use Device Manual	14	12.4%
Second Preferred Method		
Use Device Help	22	19.5%
Use Device Manual	17	15.0%
Talk to Children	12	10.6%
Work it Out by Trial	10	8.8%
Talk to Younger Generation	10	8.8%
Third Preferred Method		
Use Device Help	13	11.5%
Use Device Manual	13	11.5%
Phone Customer Support	13	11.5%
Work it Out by Trial/Error	13	11.5%
Use Device tutorial	11	9.7%

Table 21

Helpful Methods and Resources: Preferred Choices: Top Three Choices

Category	1st Preferred Method	2nd Preferred Method	3rd Preferred Method
Work it Out by Trial/Error	1st choice	4th choice	1st choice
Talk to Children	2nd choice	3rd choice	not in top 5
Use Device Help	3rd choice	1st choice	1st choice
Use Device Manual	3rd choice	2nd choice	1st choice
Take a Class	4th choice	not in top 5	5th choice
Search the Internet	5th choice	not in top 5	4th choice
Use Device Tutorial	not in top 5	5th choice	2nd choice
Talk to Spouse	not in top 5	not in top 5	not in top 5
Talk to my Generation	not in top 5	not in top 5	4th choice
Talk to Younger Generation	not in top 5	4th choice	3rd choice
Phone Customer Support	not in top 5	not in top 5	1st choice

Focus Group Quantitative Analysis

Based on the responses to the research questions, specifically question 14 regarding seeking to gather/determine what task requirements older adults would desire from a mobile device tutorial and question 15 regarding seeking to gather/determine what feature requirements older adult would desire from a mobile device tutorial, two focus groups were created to obtain quantitative analysis. Focus group A, answered favorably (very likely) to desire the task or feature requirements of a mobile device tutorial and the second group, focus group B, answered unfavorably (very unlikely) to desire the task or feature requirements of a mobile device tutorial. Based on the participants' responses, interviews were performed, to gather quantitative analysis.

Demographics: Focus Group A (Very Likely)

Frequencies and Percentages

For age range, one (20%) participant fell into the category of 65–70 and two (40%) participants fell into the variables of 71–75 and 76–80. For education, one (20%) participant fell into the category of BA; three (60%) participants fell into the category of graduate and one (20%) participant fell into the category of high school. For gender, two (40%) participants fell into the category of female and three (60%) participants fell into the category of male. For housing, three (60%) participants fell into the category of private household (living independently) and two (40%) participants fell into the category of private household, living with children. For work status, three (60%) participants fell into the category of retired and two (40%) participants fell into the category of retired/part-time. Table 22 presents demographics: Focus Group A – frequencies and percentages for nominal variables.

Demographics: Focus Group B (Very Unlikely)

Frequencies and Percentages

For age range, two (40%) participants fell into the category of 71–75 and one (20%) participant fell into each of the variables of 76–80, 81–85 and 86–90. For education, one (20%) participant fell into the category of BA; two (40%) participants fell into the category of graduate and two (40%) participants fell into the category of high school. For gender, four (80%) participants fell into the category of female and one (20%) participant fell into the category of male. For housing, two (40%) participants fell into the category of private household (living independently) and three (60%) participants fell into the category of private household, living

with children. For work status, five (100%) participants fell into the category of retired. Table 23 presents demographics: Focus Group B – frequencies and percentages for nominal variables.

Table 22

Demographics: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables,
n = 5

Category	*n*	Percentage
Age Range		
65–70	1	20
71–75	2	40
76–80	2	40
Education		
High School	1	20
BA	1	20
Graduate	3	60
Gender		
Female	2	40
Male	3	60
Housing Status		
Private Household	3	60
Private Household Living with Children	2	40
Work Status		
Retired	3	60
Retired/Part-Time	2	40

Mobile Devices Regularly Used: Focus Group A (Very Likely)

Frequencies and Percentages

For mobile device iPad, one (20%) participant fell into the category of currently use and four (80%) participants fell into the category of have not used. For mobile device cell phone,

three (60%) participants fell into the category of currently use and one (20%) participant fell into the variables of have not used and used in the past. For mobile device smartphone, three (60%) participants fell into the category of currently use and two (40%) participants fell into the category of have not used. For mobile device PDA, one (20%) participant fell into

Table 23

Demographics: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables,
n = 5

Category	*n*	Percentage
Age Range		
71–75	2	40
76–80	1	20
81–85	1	20
86–90	1	20
Education		
High School	2	40
BA	1	20
Graduate	2	40
Gender		
Female	4	80
Male	1	20
Housing Status		
Private Household	2	40
Private Household Living with Children	3	60
Work Status		
Retired	5	100

the category of currently use and four (80%) participants fell into the category of have not used. For mobile device eBook, two (40%) participants fell into the variables of currently use and have not used. One (20%) participant fell into the category of used in the past. For mobile device

other, five (100%) participants fell into the category of no. Table 24 presents mobile device regularly used: Focus Group A – frequencies and percentages for nominal variables.

Table 24

Mobile Device Regularly Used: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Mobile Device iPad		
Currently Use	1	20
Have Not Used	4	80
Mobile Device Cell Phone		
Currently Use	3	60
Have Not Used	1	20
Used in the Past	1	20
Mobile Device Smart Phone		
Currently Use	3	60
Have Not Used	2	40
Mobile Device PDA		
Currently Use	1	20
Have Not Used	4	80
Mobile Device eBook		
Currently Use	2	40
Have Not Used	2	40
Used in the Past	1	20
Mobile Device Other		
No	5	100

Mobile Device Regularly Used: Focus Group B (Very Unlikely)

Frequencies and Percentages

For mobile device iPad, one (20%) participant fell into the category of currently use and four (80%) participants fell into the category of have not used. For mobile device cell phone, two (40%) participants fell into the category of currently use and three (60%) participants fell into the category of used in the past. For mobile device smart phone, four (80%) participants fell into the category of currently use and one (20%) participant fell into the category of have not used. For mobile device PDA, two (40%) participants fell into the category of currently use and three (60%) participants fell into the category of have not used. For mobile device eBook, two (40%) participants fell into the category of currently use and three (60%) participants fell into the category of have not used. For mobile device other, four (80%) participants fell into the category of no and one (20%) participant fell into the category of yes. Table 25 presents mobile device regularly used: Focus Group B – frequencies and percentages for nominal variables.

Acquired Mobile Device and Abandoned it Shortly: Focus Groups A and B

Frequencies and Percentages

For acquired a mobile device and abandoned it shortly thereafter, for focus group A; five (100%) participants fell into the category of no. For focus group B, four (80%) participants fell into the category of no and one (20%) participant fell into the category of yes. Table 26 presents acquired mobile device and abandoned it shortly: Focus Groups A and B – frequencies and percentages for nominal variables.

Table 25

Mobile Device Used Regularly: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Mobile Device iPad		
Currently Use	1	20
Have Not Used	4	80
Mobile Device Cell Phone		
Currently Use	2	40
Used in the Past	3	60
Mobile Device Smart Phone		
Currently Use	4	80
Have Not Used	1	20
Mobile Device PDA		
Currently Use	2	40
Have Not Use	3	60
Mobile Device eBook		
Currently Use	2	40
Have Not Used	3	60
Mobile Device Other		
No	4	80
Yes	1	20

Experience: Learn, Forget, and Problems with Mobile Device: Focus Group A (Very Likely)

Frequencies and Percentages

For need or want to learn (excluding the iPad), one participant fell into the category of 1 (20%) or less time a month and four (80%) participants fell into the category of 1 time a week.

For forget how to do something (excluding the iPad), one (20%) participant fell into the category of 1 time a day; two (40%) participants fell into the category of 1 time a week; one (20%)

Table 26

Acquired Mobile Device and Abandoned it Shortly: Focus Groups A and B: Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Focus Group A (Very Likely)		
No	5	100
Focus Group B (Very Unlikely)		
No	4	80
Yes	1	20

participant fell into the category of 2–4 times a week and one (20%) participant fell into the category of 1 time a week. For encounter a problem or error (excluding the iPad), one (20%) participant fell into the category of 1 or less time a month; two (40%) participants fell into the category of 1 time a week and two (40%) participants fell into the category of 2–4 times a week. For need or want to learn on iPad, two (40%) participants fell into the category of 2–4 times a week and three (60%) participants fell into the category of do not have an iPad. For forget how to do something, one (20%) participant fell into the category of 1 time a day and four (80%) participants fell into the category of do not have an iPad. For encounter a problem or error, one (20%) participant that fell into the category of 2–4 times a week and four (80%) participants fell into the category of do not have an iPad. Table 27 presents experience – learn, forget, and problem with mobile device – Focus Group A: frequencies and percentages for nominal variables.

Table 27

Experience: Learn, Forget, and Problem with Mobile Device: Focus Group A (Very Likely) Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Want to Learn (Excluding the iPad)		
0 < 1 Time a Month	1	20
1 Time a Week	4	80
Forget How to Do Something (Excluding the iPad)		
1 Time a Day	1	20
1 Time a Week	2	40
2–4 Times a Week	1	20
1 Time a week	1	20
Encounter a Problem (Excluding the iPad)		
0 < 1 Time a Month	1	20
1 Time a Week	2	40
2–4 Times a Week	2	40
Want to Learn iPad		
2–4 Times a Week	2	40
Does Not Have an iPad	3	60
Forget how to Do Something – iPad		
1 Time a Day	1	20
Does Not Have an iPad	4	80
Encounter a Problem – iPad		
2–4 Times a Week	1	20
Does Not Have an iPad	4	80

Experience: Learn, Forget, and Problems with Mobile Devices: Focus Group B (Very Unlikely)

Frequencies and Percentages

For need or want to learn (excluding the iPad), one (20%) participant fell into the category of 1 time a day; one (20%) participant fell into the category of 1 or less time a month; one (20%) participant fell into the category of 2–4 times a week and two (40%) participants fell into the category of 1 time a week. For forget how to do something (excluding the iPad), three (60%) participants fell into the category of 2–4 times a week; two (40%) participants fell into the category of 1 time a week. For encounter a problem or error (excluding the iPad), one (20%) participant fell into the category of 1 time a day; two (40%) participants fell into the category of 2–4 times a week. For need or want to learn on iPad, one (20%) participant fell into the category of 1+ times a day and three (60%) participants fell into the category of do not have an iPad. For forget how to do something, four (80%) participants fell into the category of do not have an iPad. For encounter a problem or error, four (80%) participants fell into the category of do not have an iPad and one (80%) participant fell into the category of 1 time a week. Table 28 presents experience – learn, forget, and problem with mobile device – Focus Group B: frequencies and percentages for nominal variables.

Characterize Yourself in Terms of Being Able to Use a Mobile Device: Focus Groups A and B

Frequencies and Percentages

For focus group A, for use smart phone, two (40%) participants fell into the variables of beginner and no experience and one (20%) participant fell into the category of novice. For use

iPad, one (20%) participant fell into the category of beginner and four (80%) participants fell into the category of no experience. For use eBook, one (20%) participant fell into the category

Table 28

Experience: Learn, Forget, and Problem with Mobile Device: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Want to Learn (Excluding the iPad)		
1 Time a Day	1	20
0 < 1 Time a Month	1	20
2–4 Times a Week	1	20
1 Time a week	2	40
Forget How to do Something (Excluding the iPad)		
2–4 Times a Week	3	60
1 Time a Week	2	40
Encounter a Problem (Excluding the iPad)		
1 Time a Day	1	20
1+ Times a Day	1	20
2–4 Times a Week	2	40
1 Time a Week	1	20
Want to Learn iPad		
1+ Times a Day	1	20
2–4 Times a Week	1	20
Do Not Have an iPad	3	60
Forget How to Do Something on iPad		
Do Not Have an iPad	4	80
1 Time a Week	1	20
Encounter a Problem on iPad		
Do Not Have an iPad	4	80
1 Time a Week	1	20

of beginner and four (80%) participants fell into the category of no experience. For use desktop, laptop, and netbook, one (20%) participant fell into each of the variables of beginner, novice, and advanced and two (40%) participants fell into the category of intermediate. The top part of table 29 presents characterize yourself: Focus Group A – frequencies and percentages for nominal variables.

For focus group B, for use smart phone, two (40%) participants fell into the variables of beginner and no experience and one (20%) participant fell into the category of intermediate. For use iPad, two (40%) participants fell into the category of beginner and three (60%) participants fell into the category of no experience. For use eBook, one (20%) participant fell into the variables of novice and advanced and three (60%) participants fell into the category of no experience. For use desktop, laptop, and netbook, two (40%) participants fell into the category of advanced and one (20%) participant fell into each of the variables of beginner, intermediate, and no experience. The bottom part of table 29 also presents characterize yourself – Focus Group B: frequencies and percentages for nominal variables.

Years Having Used a Mobile Device: Focus Groups A and B

Frequencies and Percentages

For focus group A, for years using a mobile device, two (40%) participants fell into the variables of 0–1 year. One (20%) participant fell into each of the variables of 2–5 years, 6–10 years, and 11+ years. For focus group B, for years having used a mobile device, two (40%) participants fell into the variables of 0–1 year and 6–10 years. One (20%) participant fell into the category of 11+ years. Table 30 presents years using a mobile device: Focus Groups A and B – frequencies and percentages for nominal variables.

Table 29

Characterize Yourself: Focus Group A and B: Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Focus Group A (Very Likely)		
Use Smart Phone		
Beginner	2	40
Novice	1	20
No Experience	2	40
Use iPad		
Beginner	1	20
No Experience	4	80
Use eBook		
Beginner	1	20
No Experience	4	80
Used Desktop, Laptop, and Netbook		
Beginner	1	20
Novice	1	20
Intermediate	2	40
Advanced	1	20
Focus Group B (Very Unlikely)		
Use Smart Phone		
Beginner	2	40
Intermediate	1	20
No Experience	2	40
Use iPad		
Beginner	2	40
No Experience	3	60
Use eBook		
Novice	1	20
Advanced	1	20
No Experience	3	60
Used Desktop, Laptop, and Netbook		
Beginner	1	20
Intermediate	1	20
Advanced	2	40
No Experience	1	20

Table 30

Years Having Used a Mobile Device: Focus Group A and B: Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
Years Having Used a Mobile Device		
Focus Group A (Very Likely)		
0–1 Year	2	40
2–5 Years	1	20
6–10 Years	1	20
11+ Years	1	20
Focus Group B (Very Unlikely)		
0-1 Year	2	40
6-10 Years	2	40
11+ Years	1	20

Qualities and Features for Learning to Use a Mobile Device: Focus Groups A and B

Means and Standard Deviations

Table 31 shows focus group A and B: means and standard deviations for the five (very affordable, easy to access, easy to understand, friendly and patient, interactive, and allows me to learn by myself) qualities and features for learning to use a mobile device. The means ranged for focus group A, from 4.20 to 6.00. Easy to access had the highest mean of 6.00. The mean difference is 5.03. The standard deviation ranged from 0.00 (no difference) to 2.07. Friendly and patient had the largest standard deviation of 2.07. The mean ranged for focus group B, from 4.20 to 5.00. Friendly and patient had the highest mean of 5.40. The mean difference is 4.83. The standard deviation ranged from 0.89 to 2.17. Allows me to learn by myself had the largest standard deviation of 2.17.

Table 31

Qualities and Features for Learning to Use a Mobile Device: Focus Groups A and B: Means and Standard Deviations for Continuous Variables

Category	*Mean*	*Standard Deviation*
Focus Group A (Very Likely)		
Very Affordable	5.60	0.55
Easy to Access	6.00	0.00
Easy to Understand	5.00	1.00
Friendly and Patient	4.40	2.07
Interactive	5.00	0.71
Allows Me to Learn by Myself	4.20	1.92
Focus Group B (Very Unlikely)		
Very Affordable	4.40	2.07
Easy to Access	5.20	1.30
Easy to Understand	5.00	1.73
Friendly and Patient	5.40	0.89
Interactive	4.80	1.30
Allows Me to Learn by Myself	4.20	2.17

Likelihood to Use Learning Device Methods and Resources: Focus Group A (Very Likely)

Frequencies and Percentages

For the first choice, one (20%) participant fell into each of the variables of use device help, search the Internet, and work it out by trial/error and two (40%) participants fell into the category of use device tutorial. For the second choice, one (20%) participant fell into each of the variables of use device help, use device manual, and use device tutorial and two (40%) participants fell into the category of search the Internet. For the third choice, one (20%) participant fell into each of the variables of talk to children, use device tutorial, and talk to spouse and two (40%) participants fell into the category of take a class. For the fourth choice, two (40%) participants fell into the category of talk to children and one (20%) participant fell

into each of the variables of my talk to my generation, talk to spouse, and phone customer support. For the fifth choice, one (20%) participant fell into each of the variables of search the Internet, use device manual, and talk to my generation and two (40%) participants fell into the variables of work it out by trial/error. For the sixth choice, one (20%) participant fell into the category of talk to children and two (40%) participants fell into the variables of take a class and use device help. For the seventh choice, two (40%) participants fell into the category of use device manual and one (20%) participant fell into each of the variables of talk to my generation, phone customer support, and work it out by trial/error. Table 32 presents an excerpt of the likelihood to use a learning device methods and resources – Focus Group A: frequencies and percentages for nominal variables. The complete data for the likelihood to use a learning device methods and resources: Focus Group A: frequencies and percentages for nominal variables can be found in Appendix F, Table F32. Table 33 presents the top five choices for the likelihood to use a learning device methods and resources – Focus Group A.

Likelihood to Use Learning Device Methods and Resources: Focus Group B (Very Unlikely)

Frequencies and Percentages

For the first choice, one (20%) participant fell into each of the variables of take a class, use device manual, and work it out by trial/error and two (40%) participants fell into the category of talk to spouse. For the second choice, two (40%) participants fell into the category of talk to children and one (20%) participant fell into each of the variables of talk to colleague, use device help, and use device manual. For the third choice, one (20%) participant fell into each of the

Table 32 (excerpt table – complete table located at Appendix F, Table F32)

Likelihood to Use a Learning Device Methods and Resources: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
First Choice		
Use Device Help	1	20
Search the Internet	1	20
Work it Out by Trial/Error	1	20
Use Device Tutorial	2	40
Second Choice		
Use Device Help	1	20
Search the Internet	2	40
Use Device Manual	1	20
Use Device Tutorial	1	20
Third Choice		
Talk to Children	1	20
Take a Class	2	40
Talk to Spouse	1	20
Use Device Tutorial	1	20
Fourth Choice		
Talk to Children	2	40
Talk to My Generation	1	20
Talk to Spouse	1	20
Phone Customer Support	1	20
Fifth Choice		
Search the Internet	1	20
Use Device Manual	1	20
Talk to My Generation	1	20
Work it Out by Trial/Error	2	40
Sixth Choice		
Talk to Children	1	20
Take a Class	2	40
Use Device Help	2	40

Table 33

Likelihood to Use a Learning Device Methods and Resources: Focus Group A (Very Likely): Top Five Choices, n = 5

Category	1st Choice	2nd Choice	3rd Choice	4th Choice	5th Choice
Work it Out by Trial/Error	1st choice	not selected	not selected	not selected	4th choice
Use Device Manual	not selected	3rd choice	not selected	not selected	2nd choice
Talk to Children	not selected	not selected	1st choice	1st choice	not selected
Talk to Spouse	not selected	not selected	3rd choice	3rd choice	not selected
Use Device Help	1st choice	1st choice	not selected	not selected	not selected
Search the Internet	1st choice	2nd choice	not selected	not selected	1st choice
Take a Class	not selected	not selected	2nd choice	not selected	not selected
Use Device tutorial	2nd choice	4th choice	4th choice	not selected	not selected
Talk to my Generation	not selected	not selected	not selected	2nd choice	3rd choice
Talk to Younger Generation	not selected	not selected	not selected	not selected	not selected
Phone Customer Support	not selected	not selected	not selected	4th choice	not selected
Talk to Colleague	not selected	not selected	not selected	not selected	not selected
Other	not selected	not selected	not selected	not selected	not selected

variables of take a class, search the Internet, and talk to my generation and two (40%) participants fell into the category of use device tutorial. For the fourth choice, one (20%) participant fell into each of the variables of talk to spouse, use device tutorial, and talk to younger generation and two (40%) participants fell into the category of phone customer support. For the fifth choice, one (20%) participant fell into each of the variables of talk to children, talk to spouse, work it out by trial/error, use device tutorial, and talk to younger generation. For the sixth choice, one (20%) participant fell into each of the variables of talk to children, use device help, and talk to younger generation and two (40%) participants fell into the category of talk to my generation. For the seventh choice, one (20%) participant fell into the category of use device help and one (20%) participant fell into each of the variables of search the Internet, use device manual, talk to spouse, and talk to younger generation. Table 34 presents an excerpt of

the likelihood to use a learning device methods and resources – Focus Group B: frequencies and percentages for nominal variables. The complete data for the likelihood to use a learning device methods and resources: Focus Group B: frequencies and percentages for nominal variables can be found in Appendix F, Table F34. Table 35 presents the top five choices for the likelihood to use a learning device methods and resources – Focus Group B.

Table 34 (excerpt table – complete table located at Appendix F, Table F34)

Likelihood to Use a Learning Device Methods and Resources: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
First Choice		
Take a Class	1	20
Use Device Manual	1	20
Talk to Spouse	2	40
Second Choice		
Talk to Children	2	40
Talk to Colleague	1	20
Use Device Help	1	20
Third Choice		
Take a Class	1	20
Search the Internet	1	20
Talk to My Generation	1	20
Fourth Choice		
Talk to Spouse	1	20
Phone Customer Support	2	40
Use Device Tutorial	1	20
Fifth Choice		
Talk to Children	1	20
Talk to Spouse	1	20
Work it Out by Trial/Error	1	20

Table 35

Likelihood to Use a Learning Device Methods and Resources: Focus Group B (Very Unlikely): Top Five Choices, n = 5

Category	1st Place	2nd Place	3rd Place	4th Place	5th Place
Work it Out by Trial/Error	4th choice	not selected	not selected	not selected	3rd choice
Use Device Manual	2nd choice	4th choice	not selected	not selected	not selected
Talk to Children	not selected	1st choice	not selected	not selected	1st choice
Talk to Spouse	3rd choice	not selected	not selected	1st choice	2nd choice
Use Device Help	not selected	3rd choice	not selected	not selected	not selected
Search the Internet	not selected	not selected	2nd choice	not selected	not selected
Take a Class	1st choice	not selected	1st choice	not selected	not selected
Use Device tutorial	not selected	not selected	4th choice	3rd choice	4th choice
Talk to my Generation	not selected	not selected	3rd choice	not selected	not selected
Talk to Younger Generation	not selected	not selected	not selected	4th choice	5th choice
Phone Customer Support	not selected	not selected	not selected	2nd choice	not selected
Talk to Colleague	not selected	2nd choice	not selected	not selected	not selected
Other	not selected	not selected	not selected	not selected	not selected

Easy Access to All Methods and Resources: Preferred Choices: Focus Group A (Very Likely)

Frequencies and Percentages

For the first preferred choice, one (20%) participant fell into the variables of use device help and work it out by trial/error and three (60%) participants fell into the category of use device tutorial. For the second preferred choice, one (20%) participant fell into each of the variables of take a class, use device help, search the Internet, use device manual, and work it out by trial/error. For the third preferred choice, two (40%) participants fell into the category of talk to children and one (20%) participant fell into each of the variables of take a class, use device help, and use device tutorial. Table 36 presents easy access to all methods – preferred choice – Focus Group A: Frequencies and percentages for nominal variables. Easy access to all methods preferred choices, for the top five is located at table 37.

Table 36

Easy Access to All Methods: Preferred Choice: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
First Preferred Method		
Use Device Help	1	20
Work it Out by Trial/Error	1	20
Use Device Tutorial	3	60
Second Preferred Method		
Take a Class	1	20
Use Device Help	1	20
Search the Internet	1	20
Use Device Manual	1	20
Work it Out by Trial/Error	1	20
Third Preferred Method		
Talk to Children	2	40
Take a Class	1	20
Use Device Help	1	20
Use Device Tutorial	1	20

Easy Access to All Methods and Resources: Preferred Choices: Focus Group B (Very Unlikely)

Frequencies and Percentages

For the first preferred choice, one (20%) participant fell into each of the variables of take a class, use device manual, and talk to spouse and two (40%) participants fell into the category of work it out by trial/error. For the second preferred choice, one (20%) participant fell into each of the variables of talk to children, take a class, use device help, phone customer support, and talk to younger generation. For the third preferred choice, two (40%) participants fell into the

Table 37

Easy Access to All Methods: Preferred Choice: Focus Group A (Very Likely): Top Five Choices, n = 5

Category	1st Preferred Method	2nd Preferred Method	3rd Preferred Method
Talk to Children	not selected	not selected	2 - 1st choice
Use Device Manual	not selected	1st choice	not selected
Work it Out by Trial/Error	1st choice	1st choice	not selected
Take a Class	not selected	1st choice	1st choice
Use Device Help	1st choice	1st choice	1st choice
Talk to Spouse	not selected	not selected	not selected
Use Device Tutorial	3 - 1st choice	not selected	not selected
Search the Internet	not selected	1st choice	not selected
Phone Customer Support	not selected	not selected	not selected
Talk to my Generation	not selected	not selected	not selected
Talk to Work Colleagues	not selected	not selected	not selected
Talk to Younger Generation	not selected	not selected	not selected

variables of talk to children and search the Internet and one (20%) participant fell into the category of use device tutorial. Table 38 presents easy access to all methods and resources – preferred choices: Focus Group B: frequencies and percentages for nominal variables. Table 39 is the top five choices for focus group B, for easy access to all methods and resources.

Task Requirements: Focus Groups A (Very Likely) and B (Very Unlikely)

Means and Standard Deviations

Table 40 presents the five tasks (e-mail, health, shopping, restaurants, and financial) for focus groups A and B. For Focus Group A, the means ranged from 6.20 to 7.00; financial had the highest mean of 7.00. The mean difference is 6.56. The standard deviation ranged from 0.00

Table 38

Easy Access to All Methods and Resources: Preferred Choices: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
First Preferred Method		
Take a Class	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Work it Out by Trial/Error	2	40
Second Preferred Method		
Talk to Children	1	20
Take a Class	1	20
Use Device Help	1	20
Phone Customer Support	1	20
Talk to Younger Generation	1	20
Third Preferred Method		
Talk to Children	2	40
Search the Internet	2	40
Use Device Tutorial	1	20

(no difference) to 0.89, with restaurant having the largest standard deviation of 0.89. For Focus Group B, the means ranged from 1.20 to 1.60; e-mail and health had the highest mean of 1.60. The mean difference is 1.44. The standard deviation ranged from 0.45 to 0.89, with e-mail, health, and financial having the largest standard deviation of 0.89.

Table 39

Easy Access to All Methods and Resources: Preferred Choices: Focus Group B (Very Unlikely): Top Five Choices, n = 5

Category	1st Preferred Method	2nd Preferred Method	3rd Preferred Method
Talk to Children	not selected	1st choice	2 - 1st choice
Use Device Manual	1st choice	not selected	not selected
Work it Out by Trial/Error	2 - 1st choice	not selected	not selected
Take a Class	1st choice	1st choice	not selected
Use Device Help	not selected	1st choice	1st choice
Talk to Spouse	1st choice	not selected	not selected
Use Device Tutorial	not selected	not selected	not selected
Search the Internet	not selected	not selected	1st choice
Phone Customer Support	not selected	1st choice	not selected
Talk to my Generation	not selected	not selected	not selected
Talk to Work Colleagues	not selected	not selected	not selected
Talk to Younger Generation	not selected	1st choice	not selected

Feature Requirements: Focus Groups A (Very Likely) and B (Very Unlikely)

Means and Standard Deviations

Table 41 shows the five feature (contacts, reminders, photos, camera, and FaceTime) requirements means and standard deviations for focus group A and B. For Focus Group A, the means ranged from 6.40 to 6.80; reminders and photos had the highest mean of 6.80. The mean difference is 6.60. The standard deviation ranged from 0.45 to 0.55, with contacts, camera, and FaceTime having the largest standard deviation of 0.55. For Focus Group B, the means ranged from 1.40 to1.80; photos had the highest mean of 1.80. The mean difference is 1.50. The standard deviation ranged from 0.55 to 0.89, with contacts having the largest standard deviation of 0.89.

Table 40

Task Requirements: Focus Groups A and B: Means and Standard Deviations for Continuous Variables

Category	*Mean*	*Standard Deviation*
Focus Group A (Very Likely)		
E-mail	6.20	0.45
Health	6.40	0.55
Shopping	6.80	0.45
Restaurants	6.40	0.89
Financial	7.00	0.00
Focus Group B (Very Unlikely)		
E-mail	1.60	0.89
Health	1.60	0.89
Shopping	1.20	0.45
Restaurant	1.40	0.55
Financial	1.40	0.89

Table 41

Feature Requirements: Focus Groups A and B: Means and Standard Deviations for Continuous Variables

Category	*Mean*	*Standard Deviation*
Focus Group A (Very Likely)		
Contacts	6.40	0.55
Reminders	6.80	0.45
Photos	6.80	0.45
Camera	6.60	0.55
FaceTime	6.40	0.55
Focus Group B (Very Unlikely)		
Contacts	1.40	0.89
Reminders	1.60	0.55
Photos	1.80	0.84
Camera	1.40	0.55
FaceTime	1.40	0.55

Helpful Methods and Resources: Learning a Mobile Device: Focus Group A (Very Likely)

Frequencies and Percentages

For the first choice, one (20%) participant fell into the category of talk to children and two (40%) participants fell into the variables of use device help and work it out by trial/error. For the second choice, two (40%) participants fell into the variables of use device help and work it out by trial/error and one (20%) participant fell into the category of use device tutorial. For the third choice, one (20%) participant fell into each of the variables of take a class, search the Internet, use device manual, talk to spouse, and phone customer support. For the fourth choice, three (60%) participants fell into the category of take a class and one (20%) participant fell into the variables of search the Internet and talk to my generation. For the fifth choice, one (20%) participant fell into each of the variables of talk to children, search the Internet, talk to spouse, use device tutorial, and talk to younger generation. For the sixth choice, one (20%) participant fell into each of the variables of talk to children, talk to spouse, and use device tutorial and two (40%) participants fell into the category of talk to my generation. For the seventh choice, one (20%) participant fell into each of the variables of search the Internet, phone customer support, and use device tutorial and two (40%) participants fell into the category of talk to younger generation. Table 42 presents an excerpt of helpful methods and resources – learning a mobile device – Focus Group A: frequencies and percentages for nominal variables. The complete data for the percentage of the nominal variables can be found in Appendix F, Table F42. The top five choices for the helpful methods and resources is located at table 43.

Table 42 (excerpt table – complete table located at Appendix F, Table F42)

Helpful Methods and Resources: Learning a Mobile Device: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
First Choice		
Talk to Children	1	20
Use Device Help	2	40
Work it Out by Trial/Error	2	40
Second Choice		
Use Device Help	2	40
Work it Out by Trial/Error	2	40
Use Device Tutorial	1	20
Third Choice		
Take a Class	1	20
Search the Internet	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Phone Customer Support	1	20
Fourth Choice		
Take a Class	3	60
Search the Internet	1	20
Talk to My Generation	1	20

Helpful Methods and Resources: Learning a Mobile Device: Focus Group B (Very Unlikely)

Frequencies and Percentages

For the first choice, one (20%) participant fell into each of the variables of talk to children, search the Internet, use device manual, talk to spouse, and use device tutorial. For the second choice, one (20%) participant fell into each of the variables of talk to children, use device

Table 43

Helpful Methods and Resources: Learning a Mobile Device: Focus Group A (Very Likely): Top Five Choices, n = 5

Category	1st place	2nd place	3rd place	4th place	5th place
Use Device Manual	not selected	not selected	1st choice	not selected	not selected
Work it Out by Trial/Error	3rd choice	2nd choice	not selected	not selected	not selected
Use Device Help	2nd choice	1st choice	not selected	not selected	not selected
Talk to Children	1st choice	not selected	not selected	not selected	1st choice
Talk to Spouse	not selected	not selected	1st choice	not selected	1st choice
Search the Internet	not selected	not selected	1st choice	1st choice	1st choice
Talk to my Generation	not selected	not selected	not selected	1st choice	not selected
Take a Class	not selected	not selected	1st choice	1st choice	not selected
Use Device Tutorial	not selected	3rd choice	not selected	not selected	1st choice
Phone Customer Support	not selected	not selected	1st choice	not selected	not selected
Talk to Younger Generation	not selected	not selected	not selected	not selected	1st choice
Other (talk to Verizon rep)	not selected	not selected	not selected	not selected	not selected

help, and work it out by trial/error and two (40%) participants fell into the category of talk to spouse. For the third choice, one (20%) participant fell into each of the variables of talk to children, take a class, talk to my generation, phone customer support, and talk to younger generation. For the fourth choice, one (20%) participant fell into the category of search the Internet, talk to my generation, talk to spouse, work it out by trial/error, and talk to younger generation. For the fifth choice, one (20%) participant fell into the category of take a class, work it out by trial/error, and talk to younger generation and two (40%) participants fell into the category of use device tutorial. For the sixth choice, two (40%) participants fell into the category of take a class and one (20%) participant fell into each of the variables of use device help, phone customer support, and work it out by trial/error. For the seventh choice, one (20%) participant fell into each of the variables of talk to children, search the Internet, and use device manual. Table 44 presents an excerpt of helpful methods and resources – learning a mobile device – Focus Group B: frequencies and percentages for nominal variables. The complete data for

helpful methods and resources: learning a mobile device: Focus Group B: frequencies and percentages for nominal variables can be found in Appendix F, Table F44. The top five choices for the helpful methods and resources is located at table 45.

Table 44 (excerpt table - complete table located at Appendix F, Table F44)

Helpful Methods and Resources: Learning a Mobile Device: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables, n= 5

Category	*n*	Percentages
First Choice		
Talk to Children	1	20
Search the Internet	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Use Device Tutorial	1	20
Second Choice		
Talk to Children	1	20
Use Device Help	1	20
Talk to Spouse	2	40
Work it Out by Trial/Error	1	20
Third Choice		
Talk to Children	1	20
Take a Class	1	20
Talk to My Generation	1	20
Phone Customer Support	1	20
Talk to Younger Generation	1	20

Table 45

Helpful Methods and Resources: Learning a Mobile Device: Focus Group A (Very Likely): Top Five Choices, n = 5

Category	1st place	2nd place	3rd place	4th place	5th place
Use Device Manual	1st choice	not selected	not selected	not selected	not selected
Work it Out by Trial/Error	not selected	1st choice	not selected	1st choice	1st choice
Use Device Help	not selected	1st choice	not selected	not selected	not selected
Talk to Children	1st choice	1st choice	1st choice	not selected	not selected
Talk to Spouse	1st choice	1st choice	not selected	1st choice	not selected
Search the Internet	1st choice	not selected	not selected	1st choice	not selected
Talk to my Generation	not selected	not selected	1st choice	1st choice	not selected
Take a Class	not selected	not selected	1st choice	not selected	1st choice
Use device Tutorial	1st choice	not selected	not selected	not selected	1st choice
Phone Customer Support	not selected	not selected	1st choice	not selected	not selected
Talk to Younger Generation	not selected	not selected	1st choice	1st choice	1st choice
Other (talk to Verizon rep)	not selected	not selected	not selected	not selected	not selected

Helpful Methods and Resources Preferred Choices: Focus Group A (Very Likely)

Frequencies and Percentages

For the first preferred choice, three (60%) participants fell into the category of work it out by trial/error and one (20%) participant fell into the variables of use device tutorial and talk to younger generation. For the second preferred choice, one (20%) participant fell into the variables of talk to children and search the Internet and three (60%) participants fell into the category of use device help. For the third preferred choice, one (20%) participant fell into the category of talk to children and one (20%) participant fell into each of the variables of take a class, use device help, search the Internet, and use device manual. Table 46 presents helpful methods and resources, preferred choice – Focus Group A: frequencies and percentages for

nominal variables. Table 47 presents the methods and resources, preferred choices, the top three choices for focus group A.

Table 46

Helpful Methods and Resources Preferred Choice: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables, n = 5

Category	*n*	Percentage
First Preferred Choice		
Work it Out by Trial/Error	3	60
Use Device Tutorial	1	20
Talk to Younger Generation	1	20
Second Preferred Choice		
Talk to Children	1	20
Use Device Help	3	60
Search the Internet	1	20
Third Preferred Choice		
Talk to Children	1	20
Take a Class	1	20
Use Device Help	1	20
Search the Internet	1	20
Use Device Manual	1	20

Helpful Methods and Resources Preferred Choices: Focus Group B (Very Unlikely)

Frequencies and Percentages

For the first preferred choice, one (20%) participant fell into the category of take a class; one (20%) participant fell into the variables of use device manual and talk to spouse and two (40%) participants fell into the category of work it out by trial/error. For the second preferred choice, one (20%) participant fell into each of the variables of talk to children, take a class, use device help, phone customer support, and talk to younger generation. For the third preferred

Table 47

Helpful Methods and Resources Preferred Choice: Focus Group A (Very Likely): Top Three Choices, n = 5

Category	1st choice	2nd choice	3rd choice
Work it Out Trial/Error	1st choice	not selected	not selected
Talk to Children	not selected	1st choice	1st choice
Use Device Help	not selected	1st choice	1st choice
Use Device Manual	not selected	not selected	1st choice
Take a Class	not selected	not selected	1st choice
Search the Internet	not selected	1st choice	1st choice
Use Device Tutorial	1st choice	not selected	not selected
Talk to Spouse	not selected	not selected	not selected
Talk to my Generation	not selected	not selected	not selected
Talk to Younger Generation	1st choice	not selected	not selected
Phone Customer Support	not selected	not selected	not selected

choice, two (40%) participants fell into the variables of talk to children and search the Internet and one (20%) participant fell into the category of use device tutorial. Table 48 presents helpful methods and resources preferred choices – Focus Group B: Frequencies and percentages for nominal variables. Table 49 presents the helpful methods and resources preferred choices – Focus Group B, top three choices.

Similarities and Differences between the Total population and Focus Groups

There are similarities between age range, education, and housing status for the total population, focus groups A and B. The majority of the population, as well as both focus groups indicated that they have not used the iPad. Also, similarly, the majority of the population used a cell phone or another type of mobile device, as well as the two focus groups. Likewise, the years having used a mobile device and qualities and features for learning to use a mobile device, are

Table 48

Helpful Methods and Resources Preferred Choice: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables, n=5

Category	*n*	Percentage
First Preferred Choice		
Take a Class	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Work it Out by Trial/Error	2	40
Second Preferred Choice		
Talk to Children	1	20
Take a Class	1	20
Use Device Help	1	20
Phone Customer Support	1	20
Talk to Younger Generation	1	20
Third Preferred Choice		
Talk to Children	2	40
Search the Internet	2	40
Use Device Tutorial	1	20

Table 49

Helpful Methods and Resources Preferred Choices: Focus Group B (Very Unlikely), Top Three Choices, n = 5

Category	1st Place	2nd Place	3rd Place
Work it Out by Trial/Error	1st choice	not selected	not selected
Talk to Children	not selected	1st choice	1st choice
Use Device Help	not selected	1st choice	not selected
Use Device Manual	1st choice	not selected	not selected
Take a Class	1st choice	1st choice	not selected
Search the Internet	not selected	not selected	1st choice
Use Device Tutorial	not selected	not selected	1st choice
Talk to Spouse	1st choice	not selected	not selected
Talk to my Generation	not selected	not selected	not selected
Talk to Younger Generation	not selected	1st choice	not selected
Phone Customer Support	not selected	1st choice	not selected

also comparable amongst all of the groups. Table 50 presents an excerpt of the differences and comparisons for the total population, focus groups A and B for the various variables. The complete data for the differences and comparisons for the total population and Focus Groups A and B for the various variables can be found in Appendix F, Table F50.

Table 50 (excerpt table – complete table located at Appendix F, Table F50)

Differences and Comparisons for the Total Population and Focus Groups A (Very Likely) and B (Very Unlikely) for the Various Variables

	Total population	**Focus Group A**	**Focus Group B**
Likelihood	Working it Out by Trial/Error Use Device Manual Talk to Children Talk to Spouse Use Device Help	Use Device Help Search the Internet Work it Out Trial/Error Use Device Tutorial	Take a Class Use Device Manual Talk to Spouse Work it Out by Trial/Error
Easy Access	Talk to Children Use Device Manual Work it Out Trial/Error Take a Class Use Device Help	Use Device Help Work it Out Trial/Error Use Device Tutorial	Take a Class Use Device Tutorial Talk to Spouse Work it Out by Trial/Error
Helpful Methods	Work it Out Trial/Error Use Device Help Talk to children Talk to spouse Search the Internet	Use Device Help Work it out Trial/Error	Search the Internet Use Device Manual Use Device Tutorial Talk to Spouse

Quantitative Findings

The specific questions that addresses the quantitative findings of the research, focuses on the research questions. Question 14, queries the participant regarding what task requirements older adults would desire from a mobile device tutorial and question 15 queries the participant regarding what feature requirements older adults would desire from a mobile device tutorial. In

illustrating the quantitative findings, the means and standard deviations are emphasized, highlighting the significance of the component. The quantitative findings for the total population for the task requirements found that e-mail had the highest mean (4.40%), followed by health, shopping, restaurant, and financial. The findings for the feature requirements found that photos had the highest mean (4.21%), followed by camera, contacts, reminders, and FaceTime. The researcher developed findings based on the qualitative analysis from the total sample population. The major qualitative findings consisted of the benefits, to include access, availability, accuracy and usefulness. The drawbacks consisted of ease of use, user concerns, and the inability to ask questions. In the analysis of the quantitative findings for the task requirements, focus group A was slightly different from the total population, with shopping having the highest mean (6.80%), followed by health, restaurants, e-mail and financial. The findings for the task requirements for focus group B, were similar to the total population, with e-mail and health having the highest means (1.60%), followed by restaurants and financial (equal), and shopping. The findings for the feature requirements for focus group A, were similar to the total population, with photos and reminders (6.80%), followed by camera, and FaceTime and contacts. The findings for the feature requirements for focus group B, were also similar to the total population and focus group A, with photos having the highest mean (1.80%), followed by reminders, and contacts, camera, and FaceTime (equal). In the analysis of the qualitative analysis for focus group A some of the benefits included availability and encouragement. For focus group B, some of the benefits included working at one's own pace, and understandability of the device.

The total population for the feature requirements, the most important means are feature photos, 4.21%, followed by feature camera, 4.13%. The least important means are FaceTime, 3.46%, followed by reminders 3.86%. Findings for the standard deviation illustrated that photos,

1.99%, is more focused, followed by reminders, 2.02%. The least focused is 2.21% for contacts, followed by 2.12% for FaceTime.

In addressing focus group A's (very likely) population for the features requirements, the most important means are reminders and photos, 6.80%, followed by camera 6.60%. The least important means are contacts and FaceTime, 6.40%, and camera, 6.60%, are most focused, and contacts, camera, and FaceTime, 0.55% are least focused. Findings for the standard deviation illustrated that contacts, camera, and FaceTime are the least focused 0.55% and the most focused are reminders and photos, 0.45%.

In addressing focus group B's (very unlikely) population for the features requirements, the most important means are photos, 1.80%, followed by reminders, 1.60%. The least important means are contacts, camera, and FaceTime 1.40%. The findings for the standard deviation illustrated that contacts, 0.89% is the least focused, followed by photos .84%. The more focused are reminders, camera, and FaceTime, 0.55%. Table 51 reflects the quantitative data for the total population, for the mean for the most and least important for focus groups A and B. Table 51 also depicts the differences between the two focus groups with mean and standard deviation by task and feature. The percentages are based on the most and least focused for focus groups A and B.

Qualitative Findings

The qualitative analysis portion of the study was comprised of question 18, which pertained to the building of a tutorial program for teaching the older adult how to use the mobile device. The major areas of the qualitative findings for question 18's total population for the benefits of a tutorial are: (a) access to a tutorial, (b) availability, (c) encouragement, (d) time

factor, (e) skill set for a tutorial, and (f) usefulness. The drawbacks include: (a) the inability to ask questions, (b) user concerns, (c) ease of the operations, and (d) the understandability of the device's instructions. Other areas include the ease of use, the need for a task or feature tutorial,

Table 51

Quantitative Findings for Questions 14 and 15, n = 1130

	Mean		Standard Deviation	
	Most Important	**Least Important**	**Most Focused**	**Least Focused**
Task				
Total Population	e-Mail (4.40%)	Financial (3.64%)	Restaurants (1.95%)	Financial (2.31%)
Focus Group A (Very Likely)	Financial (7.00%)	E-Mail (6.20%)	E-Mail and Shopping (0.45%)	Restaurant (0.80%)
Focus Group B (Very Unlikely)	e-Mail and Health (1.60%)	Shopping (1.20%)	Shopping (0.45%)	e-Mail, Health, and Financial (0.89%)
Features				
Total Population	Photos (4.21%)	FaceTime (3.46%)	Photos (1.99%)	Contacts (2.21%)
Focus Group A (Very Likely)	Reminders and Photos (6.80%)	Contacts and FaceTime (6.40%)	Reminders and Photos (0.45%)	Contacts, Camera, and FaceTime (0.55%)
Focus Group B (Very Unlikely)	Photos (1.80%)	Contacts, Camera, and FaceTime (1.40%)	Reminders, Camera, and FaceTime (0.55%)	Contacts (0.89%)

and which task or feature was difficult to use. Table 52, presents an excerpt of the responses for the total population to include the benefits of access, availability, accuracy, encouragement, and skill set of tutorial. The main responses pertaining to why the respondent would use a mobile device include the device's availability, ease to use, use at one's leisure, and using the device at one's own pace. The respondents would like the design to have the features of larger print, a wide screen, simplicity, comprehensive, and consecutive order of the instructions. Several

respondents have used tutorials for assistance with scanning documents, knitting, and computer instructions. Participants indicated that they experienced success and partial success with the tutorial, and others indicated that they were not as successful. As far as the timeframe for becoming familiar with the tutorial, the responses ranged from 10 to 30 minutes to 2 months. Lastly, the final viewpoints from the respondents included a desire to learn something new, the age of the respondent has an effect on the learning curve, and the length of time to comprehend the information. The complete qualitative data can be found in Appendix F, Table F52.

Table 52 (excerpt table – complete table located at Appendix F, Table F52)

Mobile Device Tutorial System for Learning: Question 18: Total Population

Benefits	Participants' Responses
Access	More reading Accessible at any time Privacy, availability, and easy access Ready access to instruction
Availability	Would provide easier access; no need to wait for availability (24/7) of child of older adult Easy to schedule at one's own convenience, as opposed to depending on another person's availability of time Could use when most helpful person is not available
Accuracy	I would think the tutorial, if done well, would be more accurate than a person
Encouragement	One very important benefit would be feedback, encouraging me, since I don't feel very comfortable about technology Always there, nonjudgmental
Skill Set of Tutorial	Tutorial would have much more knowledge and skill than the most helpful person Would possibly know the answers to all the questions that I need to know

Table 53, presents an excerpt of focus group A (very likely) and B (very unlikely) responses, in which the participants elaborated upon their views and opinions regarding the task and feature requirements. The complete qualitative data can be found in Appendix F, Table F53. In examining the qualitative findings for the two focus groups, the major areas for the benefits for focus group A, are similar to the total population. These areas include: (a) availability, (b) encouragement, and (c) listening to the tutorial several times. The major areas for focus group B, are similar to the total population and focus group A, to include listening to the tutorial several times. The drawbacks from focus group A, are comparable to the total population regarding the understandability of the device's instructions and not being able to ask questions. Other areas are the timeframe for learning to use the device and expectations that are too high. For focus group B, the responses are comparable to the total population, regarding respondents being unable to ask questions, understand the directions, and taking too long to learn the device. Focus group A's responses to why one would use a tutorial to learn to use a mobile device include the ease of use, consecutive order, and availability. Focus group B's responses indicated that the respondent would use the manual in lieu of a tutorial, the difficulty of using the tutorial, and would only use it if the respondent actually needed to use the device.

The design of the tutorial for focus group A are similar to the total population. These features include large print, simplicity, and ease of use. The design of the tutorial for focus group B was similar to focus group A's and the total population, with regard to the large type, simplicity, and consecutive order. Both focus groups have used tutorials before for assistance with setting up a DVD player, fixing a faucet, building a bookcase, and assembling a chair.

Table 53 (excerpt table – complete table located at Appendix F, Table F53)

Question 18: Mobile Device Tutorial System for Learning: Focus Groups A (Very Likely) and B (Very Unlikely) Responses

Focus Group A - Very Likely Benefits	Focus Group B - Very Unlikely
1. The tutor has the most time and has been developed very well; the person helping may not have enough time 2. I like feedback encouraging me because I don't feel comfortable with technology 3. Tutorials would be available all the time	1. Would enable me to use the tutorial at my own pace 2. Would not have to refer to the manuals or contact the help representative 3. Would listen and listen until I understand what the tutorial is saying

Furthermore, in using the tutorial for assistance, focus group A was successful with the tutorial, and partial success occurred with focus group B. The timeframe for both groups to become familiar with the tutorial was similar to the total population, with the time range at about 30 minutes for both groups. Lastly, both groups indicated that they would be willing to try to use a tutorial if it was not too complicated.

In exploring deeper into the focus groups' responses, the participants addressed specific questions regarding the task and feature requirements. Table 54 presents an excerpt of providing further insight into focus groups A and B's responses to question 18, regarding the task and feature requirement's ease and difficulty of use, and which would require a mobile device tutorial. For the specific task or feature requirements for which a respondent would likely use a mobile device tutorial for assistance, focus group A's responses were the features of FaceTime and the tasks of e-mail, photos, and contacts. Focus group B responses were the features of camera/photos and task requirements of health care and financial. Two participants noted the concern of security with regard to health care and financial tasks and how tutorials can be tedious. Following the responses regarding the tasks and features that were identified in the study, the next question probed participants to elaborate on another type of task or feature they

would require from a tutorial. Focus group A identified features such as using Siri, navigation, Dragon Speak, and foreign-language classes. Focus group B acknowledged features such as playing games, knitting, decorating, and grocery shopping.

Table 54 (excerpt table – complete table located at Appendix F, Table F54)

Focus Group A (Very Likely) and Focus Group B (Very Unlikely) Responses for a Mobile Device Tutorial

Focus Group A - Very Likely
1. Feature – FaceTime: Using FaceTime to contact family members and close friends; would like to actually see my grandchildren 2. Task – E-mail: Would like to be able to recall/retrieve a deleted message; how to bring it back from trashcan 3. Task – Contacts: How would a user be able to call someone from contacts? 4. Task – Photos: How would a user organize photos and videos (i.e., grandchildren, trips, etc.)
Focus Group B - Very Unlikely
1. Task – Health care: What type of security would be on the device? How secure would the device be if I used it to retrieve/submit health information. 2. Task – Financial: What type of security would be on the device to protect my financial information? 3. All Tasks and Features: How long would it take to figure out how to do the specific task or feature? Tutorials can be tedious.

The next set of questions pertained to the ease of use or lack of ease of use regarding tasks for the mobile device. Focus group A identified sending and receiving e-mails as the task that was easy to use, whereas focus group B pointed out that grocery shopping, financial, and health information were the tasks that were difficult to use on the mobile device. For feature ease of use or lack of ease of use, Focus group A's responses were accessing contacts, reminders, and photos. Focus group B's features that were difficult were FaceTime, camera, and iTunes. The tutorials that focus group A would request for tasks are accessing the pharmacy, establishing

e-mail folders, and grouping and ungrouping apps and coupons. Focus group B would request hooking up a printer, availability of library books, foreign language, and transferring media. The main tutorials that focus group A would requests for features, are setting up Wi-Fi, using Newsstand, Game Center, and the App Store. For focus group B, the major tutorials would be settings for the iPad, using Netflix, watching movies, and playing games. The complete qualitative data can be found in Appendix F, Table F54.

Summary

This chapter discussed the execution of the pilot study, where five older adults evaluated an adapted questionnaire to ensure soundness of the questionnaire. Using the revised questionnaire, the researcher administered the questionnaire to 113 older adults at four senior activity centers, located in Prince George's County, Maryland. The quantitative and qualitative questionnaire consisted of demographic data and mobile device usage and specifically ascertained views and opinions regarding the task and feature requirements of a mobile device tutorial. The researcher developed quantitative and qualitative analysis based on the responses from the sample population. Additionally, quantitative statistics were employed to generate the quantitative analysis. Based on the responses from the sample population and to expound on the views and opinions regarding the task and feature requirements for the mobile device tutorial, the researcher, selected two focus groups from the total population, to gather additional qualitative data. The two focus groups consisted of focus group A that consisted of five participants who were very likely (Likert scale 5, 6, and 7), to desire task or feature requirements from a mobile device tutorial and focus group B, consisted of five participants who were very unlikely (Likert scale 1, 2, and 3) to desire task or feature requirements from a mobile device tutorial.

The quantitative findings for the total population for the task requirements found that e-mail had the highest mean (4.40%), followed by health, shopping, restaurant, and financial. The findings for the feature requirements found that photos had the highest mean (4.21%), followed by camera, contacts, reminders, and FaceTime. The researcher developed findings based on the qualitative analysis from the total sample population. The major qualitative findings consisted of the benefits, to include access, availability, accuracy and usefulness. The drawbacks consisted of ease of use, user concerns, and the inability to ask questions. In the analysis of the quantitative findings for the task requirements, focus group A was slightly different from the total population, with shopping having the highest mean (6.80%), followed by health, restaurants, e-mail and financial. The findings for the task requirements for focus group B, were similar to the total population, with e-mail and health having the highest means (1.60%), followed by restaurants and financial (equal), and shopping. The findings for the feature requirements for focus group A, were similar to the total population, with photos and reminders (6.80%), followed by camera, and FaceTime and contacts. The findings for the feature requirements for focus group B, were also similar to the total population and focus group A, with photos having the highest mean (1.80%), followed by reminders, and contacts, camera, and FaceTime (equal). In the analysis of the qualitative analysis for focus group A some of the benefits included availability and encouragement. For focus group B, some of the benefits included working at one's own pace, and understandability of the device.

Chapter 5

Conclusions, Implications, Recommendations, and Summary

Introduction

The components of this chapter begin with the conclusion of the study based on the research questions, research goals, and the quantitative and qualitative analysis. This section is followed by the limitations and implications of the study, where the contributions are highlighted. Following the limitations and implications discussion, the recommendations for future research are presented. The chapter concludes with a summary of the complete dissertation.

Conclusions

The primary goal of the research was to gather the requirements for a mobile device tutorial for older adults. Specifically, the study was to evaluate a sample population of older adults to determine the task and feature requirements for a mobile device tutorial. An approved questionnaire was tailored to focus on a specific mobile device and its characteristics. After the researcher modified the questionnaire, a pilot study was initiated in which a selected group of older adults reviewed the adapted questionnaire for clarity and comprehensiveness. Upon modifying the questionnaire accordingly, the researcher distributed the questionnaire to a sample population of older adults.

In evaluating the specific mobile device and its characteristics, the researcher developed two research questions that concentrated upon the task and feature requirements for the mobile

device tutorial. Research Question 1 was: What task requirements would older adults need from a mobile device tutorial? Based on the quantitative analysis, which focused on the tasks of assistance with e-mail, health care, shopping, restaurants, and financial information, the analysis indicated:

• Assistance with e-mail, total population: mean, 4.40; standard deviation, 2.05; Focus Group A (Very Likely): mean, 6.20; standard deviation, 6.45; Focus Group B (Very Unlikely): mean, 1.60; standard deviation, 0.89

• Assistance with health care, total population: mean, 4.19; standard deviation, 2.09; Focus Group A (Very Likely): mean, 6.40; standard deviation, 0.55; Focus Group B (Very Unlikely): mean, 1.60; standard deviation, 0.89

• Assistance with shopping, total population: mean, 3.91; standard deviation, 2.03; Focus Group A (Very Likely): mean, 6.80; standard deviation, 0.45; Focus Group B (Very Unlikely): mean, 1.20; standard deviation, 0.45

• Assistance with researching restaurants, total population: mean, 3.67; standard deviation, 1.95; Focus Group A (Very Likely): mean, 6.40, standard deviation, 0.89; Focus Group B (Very Unlikely): mean 1.40; standard deviation, 0.55

• Assistance with financial information, total population: mean, 3.64; standard deviation, 2.31; Focus Group A (Very Likely): mean, 7.00; standard deviation, 0.00; Focus Group B (Very Unlikely): mean, 1.40; standard deviation, 0.89

Next, the qualitative analysis for Focus Group A showed that the participants would likely use a tutorial for assistance with task or features including FaceTime, e-mail, contacts, and photos. For Focus Group B, the participants would likely use a tutorial for assistance with task or features including health care, camera/photos, and financial. Focus Group A, responses

regarding another type of task or feature they would request from a tutorial would be: Siri, navigation, Dragon Speak, foreign languages, and Weight Watchers apps. Focus group B responses regarding another type of task or feature they would request from a tutorial included playing games, communicating with family, knitting, decorating, and grocery-store comparisons.

The means and the standard deviations for the task requirements supports the analysis for the total population and the two focus groups. Therefore, in conclusion, the qualitative and quantitative examination supports the premise that older adults would desire instruction on the five identified task requirements for a mobile device tutorial. This conclusion is based on the responses to the five task requirements of e-mail, health care, shopping, restaurants, and financial variables for the total population and the two focus group.

The second research question was: What feature requirements would older adults need from a mobile device tutorial? Based on the quantitative analysis, which focused on the features of assistance with accessing contacts, reminders, photos, camera, and FaceTime, the analysis indicated:

• Assistance with accessing contacts, total population: mean, 4.04; standard deviation, 2.21; Focus Group A (Very Likely): mean, 6.40; standard deviation, 0.55; Focus Group B (Very Unlikely): mean, 1.40; standard deviation, 0.89

• Assistance with accessing reminders, total population: mean, 3.86; standard deviation, 2.02; Focus Group A (Very Likely): mean, 6.80; standard deviation, 0.45; Focus Group B (Very Unlikely): mean, 1.50; standard deviation, 0.55

• Assistance with accessing photos, total population: mean, 4.21; standard deviation, 1.99; Focus Group A (Very Likely): mean, 6.80; standard deviation, 0.45; Focus Group B (Very Unlikely): mean, 1.80; standard deviation, 0.84

• Assistance with accessing camera, total population: mean, 4.13; standard deviation, 2.04; Focus Group A (Very Likely): mean, 6.60; standard deviation, 0.55, Focus Group B (Very Unlikely): mean, 1.40; standard deviation, .55

• Assistance with accessing FaceTime, total population: mean, 3.46; standard deviation, 2.12; Focus Group A (Very Likely): mean, 6.40; standard deviation, 0.55; Focus Group B (Very Unlikely): mean, 1.40; standard deviation, 0.55

Regarding a mobile device tutorial, the researcher divided the total population's views and opinions regarding the building of a tutorial program for teaching into eight variables. These variables included access, availability, accuracy, encouragement, skill set of tutorial, retention, usefulness, and concerns of a tutorial. The drawbacks pertained to ease of use, understanding, cannot ask questions, user concerns, and information needs.

Next, the qualitative analysis indicated the following features that were easy to use on the mobile device for Focus Group A: accessing contacts, reminders, and photos. Additionally, members from Focus Group B indicated that they would require a tutorial for hooking up a printer, storing items discovered on the Internet, and library assistance. Focus Group B also indicated that they would require a tutorial for identifying the various settings of an iPad, how to save videos on Netflix, watching movies, playing games, and how to use Dragon Speak.

The means and the standard deviations for the feature requirements supports the analysis for the total population and the two focus groups. Therefore, in conclusion, the qualitative and quantitative examination supports the premise that older adults would desire instruction on the five identified task and feature requirements for a mobile device tutorial. Additionally, the older adult should have a shared interest in the process for gathering the task and feature requirements for a mobile device tutorial, as well as being involved in the design process. These conclusions

are based on the responses to the five task requirements of e-mail, health, shopping, restaurants, and financial variables and the five feature requirements of contacts, reminders, photos, camera, and FaceTime variables for the total population and the two focus group.

Study Limitations

With reference to any research, it is important to review some of the limitations of the study. The first limitation of this study was a purposeful sample, where the results are not suggestive of or generalized to the larger population. The study involved 113 older participants, which is a small sample, compared to the overall population of older adults; a larger sample size is needed to ascertain whether the identified trend results are reliable.

Second, along with the size of the population, the participants came from four senior activity centers, all which are located within Prince George's County, Maryland. As with the sample size, additional states would be a necessity to ensure the consistency of the trends. Therefore, further work is required to ascertain whether the findings identified in the study would apply to a larger and more varied sample of older adults.

The third limitation, as identified by the pilot group, was the lengthiness of the questionnaire, especially the qualitative portion. This limitation may have led the participants in not providing detailed responses. A qualitative-only questionnaire may solicit a more comprehensive statement.

The fourth limitation pertained to the study's specific task and feature requirement applications for the mobile device tutorial. Older adults may desire other tasks and features applications for a mobile device tutorial, such as using Siri, settings, the iTunes Store,

Newsstand, or Game Center. Using these applications, may improve the older adults' quality of life.

The fifth limitation of the study pertained to the selected mobile device used for the study, the iPad. Of the total population of 113 respondents, only 40 (35.4%), currently used the iPad. In order to increase the amount of respondents who use the specific device, an online survey would be necessary to solicit a wide range of older adult participants. This information could be disseminated at senior activity buildings, community classes, churches, etc.

Implications

Even though the study contained some limitations, several implications still exist for the existing body of knowledge for older adults and mobile devices. The researcher studied a sample of the older adult population to determine the specific tasks and features requirements older adults desire for a mobile device tutorial. One prominent contribution to this study is the importance of IT developers taking older adults into consideration when designing a system (Sustar et al., 2008; Roger & Mynatt, 2003; Czaja et al., 2009; Czaja & Lee, 2007; Shneiderman & Plaisant, 2010; Coleman et al., 2010; Zajicek & Brewster, 2004; Eisma et al., 2004). In addition to designers embracing older adults' needs, prior research has illustrated that older adults are inclined to engage in research to advocate the needs and desires for a mobile device. As a result of the data analysis from the questionnaires, supported qualitative evidence exists that older adults have the inclination to become acquainted with the various types of the latest mobile technology. Another contributions is the importance of gathering the requirements from the older adults prior to the design of a mobile device tutorial. The gathering of the requirements is

a critical aspect of any project to ensure that the conditions are met for the expectations of the users.

A third contribution is the evaluation of a mobile device tutorial for older adults. Prior research indicated that tutorials were as effective as manually created tutorials in assisting users with completing tasks, and an augmented display help system assisted older adults with learning to use smart phones (Chi et al., 2012; Leung, 2011). With the current research, two ranking questions from the survey queried the respondent regarding the methods and resources of learning to use a mobile device. Evidence from the responses (likely and easy access to use learning-devices methods and resources) showed that the total population and focus groups stated that tutorials would be a choice selected for learning the mobile device. As identified by the focus groups, another contribution would be the various tasks or features that an older adult would desire from a mobile device tutorial. These tasks or features include e-mail, contacts, and other mobile device capabilities that would enhance the older adults' quality of life. In exploring features that could satisfy the needs of older adults, Garcia-Penalvo, Conde, and Matellan-Olivera (2014) articulated the development of a mobile apps repository for older adults, where the functionalities would include apps for easy visualization, web and mobile browser navigation. Karimi and Neustaedter (2011) focused on features that the older adult would desire in order to communicate with friends and families. Participants of the study were very familiar with various state-of-the art technologies, such as Facebook, Skype, and e-mail. The study illustrated the various skill-set levels of older adults using social media, with classifications such as "High-Tech Social Hub," "The Free-Spirited Bird," and "The Isolated Communicator" to describe IT literate individuals. These "High-Tech Social Hub," "The Free-Spirited Bird," and "The Isolated Communicator" individuals used e-mail, Facebook, FaceTime, text, and other

social media features to communicate with family and friends daily (Karimi and Neustaedter). Lastly, the research makes contributions to the general knowledge by presenting future scholars, researchers, and manufactures with a better understanding of the importance of the inclusion of older adults' needs when developing mobile devices and its supporting attributes, such as tutorials.

Recommendations

This research examined the gathering of the requirements for a mobile device tutorial for older adults. The researcher provided participants with a questionnaire and queried them regarding their views and opinions about a mobile device tutorial. Based on the conclusions from the findings and the limitations of this study, several recommendations for future research are as follows:

1. Additional research is necessary to examine the generalizability of the findings by testing the research model with senior participants from other senior activity centers. Collecting data across multiple organizations would enhance the generalizability.
2. Conduct the same study with participants from the Baby Boomer generation. Within the next two decades, it is the Baby Boomer generation who will be largely responsible for the increase in the senior population. Additionally, it would be interesting to observe Baby Boomers' views and opinions regarding mobile device tutorials, as well as the task and feature requirements.
3. Conduct the same study, specifically with older adults who are enrolled in some type of a computer class. All of the senior activity centers for the current study held computer classes sponsored by the Prince George's Community College, which offered a Seasoned

Adults Growing Educationally Course for adults older than the age of 60. The computer courses include Microsoft Office Suite 2010; Computers: Introduction (Internet included); Computer Skills – Intermediate; Internet: Introduction, Navigation, and Research. A comparative study could be performed regarding the older adults that attended the classes and older adults who did not attend the classes to ascertain the skill-sets and the familiarity with mobile devices.

4. Using questions 12 and 16 of the questionnaire, regarding the resource of taking a class, compare those individuals who have taken a class as opposed to those individuals who have not taken a class.
5. Using question 18 of the questionnaire as the premise, design a mock-up tutorial with the basic tasks and features requirements and determine the acceptability of the tutorial. Develop a focus group and perform comparative analysis among those who have used the tutorial versus those who have not used the tutorial.

    (a) Using question 18 of the questionnaire, have two sets of focus groups supplied with iPads; one group uses trial and error, and the other group uses the tutorial.

    (b) One group uses the instructional manual, and one group uses the tutorial to learn tasks and features.

    (c) One group has had two months of training on the iPad, and the other group has had no experience.
6. Perform the study with another type of mobile device, such as the Samsung Galaxy, the Kindle, the Nook, or another Samsung mobile device. According to Zickuhr and Madden (2012), approximately four times as many seniors currently own eBook readers as did about two years ago; 11% reported purchasing them in the most recent survey

compared with just 3% in 2010. Zickuhr and Madden also noted that tablet ownership is increasing; 8% of seniors have them, which is up from 1% in 2010.

7. To minimize the demands of movement performance for older adults or medical situations, such as arthritis within the hands, use Siri (voice activated) feature tutorial and perform a comparative study. Set up a focus group for those who use Siri and a focus group for those who do not use Siri. According to Pak and McLaughlin (2011), both the accuracy and timing of movements tend to decline with increasing age, irrespective of age-related disorders such as Parkinson's disease or arthritis.

Summary

According to the National Institute on Aging, during the 20th century, life expectancy nearly doubled, with a 10-fold growth in the number of Americans ages 65 and older. In 2006, approximately 500 million people globally were 65 and older (U.S. Department of Health and Human Services, 2007). The researchers noted that within the U.S. population, the oldest, people ages 85 and older, comprise the fastest growing segment (U.S. Department of Health and Human Services). Today, approximately 35 million Americans are ages 65 and older, and the amount is expected to double during the next 25 years (U.S. Department of Health and Human Services). By 2030, the total population of older adults is projected to increase to 1 billion; by 2050, about one in five Americans will be over age 65; and about 5% will be ages 85 and older, up from the current 2% (Taylor, Morin, Parker, Cohn, & Wang, 2009). Currently, about 4 million people of the 85 and older generation could top 19 million by 2050. Moreover, with the increase in age, research has also indicated that living to 100 is becoming increasingly commonplace (U.S. Department of Health and Human Services).

Since older adults are living longer, it is the obligation of society to ensure that the quality of life for older adults is maintained. Furthermore, a major occurrence that has changed within the past 10 to 20 years is the emergence of the information-technology era. Therefore, with the recognition of an increase of the older adult population and the need to maintain the older adults' quality of life, IT devices specifically designed for older adults, should be considered. Another major advancement occurring in today's society is the mobility and portability of IT devices. Society has become a culture of mobility or portability, that mobile device technology is virtually a requirement that every portion of society uses. The usefulness, accessibility, and portability of mobile devices can enable older adults to remain in contact with their family and friends and perform other desired functions of the device.

Mobile devices have become so prevalent that numerous books and magazines have been created for older adults. Books such as *eBay for Seniors for Dummies*, *Macs for Seniors for Dummies*, *Windows 8 for Seniors for Dummies*, and *Facebook and Twitter for Seniors for Dummies* have been published. Additionally, several glossy, user-friendly magazines for seniors exist, such as *Complete iPad for Seniors*, which provides an easy step-by-step user guide for the new iPad or iPad mini, glossary, various apps, troubleshooting, tutorials, as well as a host of other aspects. Another mobile device magazine for the older adult population is *Senior's Edition: iPad, Everything you need to know to get started with your iPad*, which illustrates features such as syncing up with iBooks, chatting with friends and family, putting photos on the iPad, listening to music, learning to talk to Siri, and other notable features and tasks. With the population, continued research in the area of older adults and mobile devices is increasing, as well.

In order to ensure that older adults' IT needs are met, it is necessary that older individuals become a part of the design of mobile devices. Specifically, it is important that designers of mobile devices examine the requirements for older adults using mobile devices. Therefore, the goal of the research was to examine the gathering of the task and feature requirements for a mobile device tutorial for older adults. The research questions for the study address the factors of mobile devices. Research Question 1 was: What task requirements would older adults need from a mobile device tutorial? Research Question 2 asked: What feature requirements would older adults need from a mobile device tutorial? In order to assist the researcher, the specific mobile device used in the study was an iPad. The researcher used the iPad because of its marketplace availability and ease of use.

The literature review outlined the most prevalent aspects of older adults and mobile devices. The analysis presented prior studies pertaining to the older adults' acceptance of IT and the older adults' needs and cognitive issues, such as weakening vision, arthritis, and memory problems. Researchers have noted that mobile devices can assist older adults in becoming more independent as they experience declines in perceptual, motor, and cognitive abilities because of the aging processes (Leung et al., 2012). The technology acceptance model (TAM), which Davis (1989) originated, focused on user acceptance of information systems, specifically among older adults. Renauld and Van Bilijon (2008) expanded the TAM model and proposed the senior technology acceptance and adoption model (STAM) for the senior user, which provided insight into older adult users, as well as the older adult users' acceptance and usage of mobile technology. Advancing from the mobile technology, researchers examined how acceptance of the mobile tablet contributes to the quality of life for the elderly. Rogers and Mynatt (2003) pointed out that many computer-based systems have been designed with little regard for potential

older adult users. Scholarly researchers have posited that older adults are a large market group with various needs and preferences that designers, developers, and engineers must take into account when creating products (Sustar, Pfeil, and Zaphiris, 2008).

Researchers are currently examining tablet ownership and how it is increasing each and every year. Werner and Werner (2012) assessed whether the acceptance and usability of a tablet would reduce the barriers that the elderly currently encounter. The results of the studies indicated that an ease of use existed when using the tablet, especially when it pertained to the nontechnical look and feel of the touchscreen. In examining tutorial assistance, researchers introduced a mixed static and video tutorial system that automatically generated step-by-step instructions from user demonstrations (Chi, Ahn, Dontcheva, Li, and Hartmann, 2012).

Last, in examining the importance of gathering research, research indicated that the specific requirements are vital components that should be performed for any project and are essential in identifying the needs, and understanding user requirements is an integral part of information-systems design and is critical to the success of interactive systems. The usefulness of increasingly common mobile devices, such as mobile telephones, handheld computers, and digital cameras, stems largely from their portability and constant accessibility, which allows users to access facilities while on the move and in locations where no other access to technology is possible.

The researcher modified and adapted an existing questionnaire to address the descriptive study. To address the goal of the study, both quantitative and qualitative data were collected to answer the research questions. Further, the researcher selected a pilot group to review the questionnaire to ensure the comprehensiveness and soundness of the survey. The researcher

incorporated the applicable suggestions of the pilot group (n = 10) into the questionnaire and selected four senior activity centers within Prince George's County to participate in the research.

One hundred and thirteen respondents participated in the quantitative portion of the study. From the total respondents, the researcher selected a sample to participate in a qualitative study, which consisted of two focus groups. The first was comprised of five people who were very likely to likely to use a mobile device tutorial, and the other was comprised of five people who were very unlikely to use a mobile device tutorial. The results of the qualitative and quantitative confirms the need for older adults to be included in the design of mobile devices and the premise that older adults would desire the five identified task and feature requirements for a mobile device tutorial. Last, further identifying and understanding these requirements will help further research to better understand gathering the needs for a mobile device tutorial for older adults.

The final chapter reintroduces the conclusion, highlighting the goal of the study, the research questions, and the quantitative and qualitative analysis. The study's two focus groups provided the qualitative analysis pertaining to the task and feature requirements for a mobile device tutorial for older adults. The conclusion from the qualitative and quantitative analysis supports the premise that older adults would desire instructions for the five identified task and feature requirements for a mobile device tutorial. Following the qualitative and quantitative analysis, the limitations, which were discussed in chapter 1, pertained to the generalizability of the results, the size of the population, the specific task and features, and references to the mobile device. The contributions of the research, acknowledged that prior to the design of a mobile device, it would behoove the developers to take the older adult into consideration when designing a mobile device, as well as the gathering of the older adult's requirements for the

mobile device. The recommendations consisted of extending the range of ages and using other older adult venues. In the current study, the specific age range was 65 – 91; it would be interesting to ascertain the study with baby boomers, which were born between 1946 and 1964. Additionally, the venues of the study were four senior activity centers; another venue could be older adults enrolled in computer classes, whereby there would be the design of a mock-up tutorial, thus applying an additional level to the body of knowledge to the study. Further, an alternative type of mobile device could be utilized, thus adding an added dimension to the study of older adults and mobile devices. Lastly, the chapter provides a holistic view of the entire dissertation.

In conclusion, since research has indicated that older adults have a longer lifespan and will be the majority of the population in 2030, it would be pragmatic to ensure that the IT devices are designed to adapt to the older adult's quality of life. The latest generational IT portable device, the mobile device, is convenient, easy to use and user friendly, and thereby would support the older adults' IT mobile desires, such as communicating with family and friends, researching health information, and locating places of interest. Realizing the importance of accommodating the older adult population, the purpose of the research was to emphasize the necessity of ensuring that the older adult should have a shared interest in the process for gathering the task and feature requirements for a mobile device tutorial. The mobile device tutorial would increase the older adult's quality of life by enabling the older adult's independence and increase the older adult's literacy of mobile devices. As a result of the mixed methods study, the findings indicated that older adults, want to be involved in the design process, and most importantly want to use the mobile devices, to receive individual instructions, and without being dependent on user manuals, children, customer support, or other resources, for

assistance. In closing, a mobile device tutorial would be a much needed IT improvement that the older adult generation would consider value-add enhancement to the older adult's well-being.

Appendix A

NOVA SOUTHEASTERN UNIVERSITY
Office of Grants and Contracts
Institutional Review Board

MEMORANDUM

To: Michele Washington

From: Ling Wang, Ph.D.
Institutional Review Board

Date: August 30, 2013

Re: *Gathering the requirements for a mobile device tutorial for older adults*

IRB Approval Number: wang08151304

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

1) CONSENT: If recruitment procedures include consent forms these must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.

2) ADVERSE REACTIONS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and 954-262-2020 respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Protocol File

3301 College Avenue • Fort Lauderdale, FL 33314-7796 • (954) 262-5369
Fax: (954) 262-3977 • Email: *inga@nsu.nova.edu* • Web site: www.nova.edu/cwis/ogc

Appendix B

Older Adults and Mobile Device Questionnaire

Demographic Information

1. **What is your age range?**

○ 65–70 ○ 71–75 ○ 76–80 ○ 81–85 ○ 86–90 ○ 91–100

2. **What is the highest level of education you have achieved?**
Check the most suitable option.
   - ○ Less than high school
   - ○ High school or equivalent (e.g., GED)
   - ○ Some university/college
   - ○ Bachelor's degree
   - ○ Graduate degree (e.g., masters or doctoral)
   - ○ Professional degree: _____

3. **What is your gender**?
   - ○ Male ○ Female

4. **What type of housing do you live in?**
Check the most appropriate option.
   - ○ Private household (living independently)
   - ○ Private household (living with children, relative or other individual, assisted living)
   - ○ Care facility (e.g., assisted living, nursing homes, and hospitals)
   - ○ Other

5. **What is your current work status?**
Check the most appropriate status.
   - ○ Full time ○ Part time ○ Retired ○ Retired/Part-time

Experience with Mobile Devices

For the purpose of this survey, the term *mobile device* refers to any of the following handheld computer technology:

- iPads, cell phones, smart phones
- Digital camera, digital music player, digital video player
- Electronic calendar and address book
- Personal digital assistant (PDA)
- eBook readers (Netbook, Kindle Fire, Nook)

A laptop is not considered a mobile device in this survey.

6. What types of mobile devices do you regularly use (at least once a month) or have you regularly used in the past?
Check all that apply.

	currently use	used in the past	have not used
iPad	☐	☐	☐
Cell Phones	☐	☐	☐
Smart Phone (cell phone with advanced Internet/e-mail/data capabilities, e.g., BlackBerry, iPhone)	☐	☐	☐
Personal Digital Assistant/Handheld computer (e.g., Palm Pilot, iPod Touch)	☐	☐	☐
eBook readers (Amazon Kindle Fire and Barnes & Noble Color Nook)	☐	☐	☐
Other (please specify): _____			

7. Have you ever acquired a mobile device and abandoned it shortly thereafter?

○ Yes ○ No

If yes, state what kind of device it was, and explain in 1–2 sentences why it was abandoned:

_____

_____

_____

_____

8. How often do you experience the following?

In each row, check one box that best applies

	0 < 1 Times a Month	1–3 Times a Month	1 Times a Week	2–4 Times a Week	1 Time a day	1+ Time a day	Do Not Have an iPad
I need or want to learn to do something on my mobile device (excluding the iPad)	⬭	⬭	⬭	⬭	⬭	⬭	⬭
I forget how to do something on my mobile device (excluding the iPad)	⬭	⬭	⬭	⬭	⬭	⬭	⬭
I encounter a problem or error on my mobile device (excluding the iPad) and am not sure how to recover	⬭	⬭	⬭	⬭	⬭	⬭	⬭
I need or want to learn to do something on my iPad	⬭	⬭	⬭	⬭	⬭	⬭	⬭
I forget how to do something on my iPad	⬭	⬭	⬭	⬭	⬭	⬭	⬭
I encounter a problem or error on my iPad and am not sure how to recover	⬭	⬭	⬭	⬭	⬭	⬭	⬭

9. How would you characterize yourself in terms of being able to use mobile devices (smart phones, iPads, and eBook readers) and computers (desktops, laptops, and netbooks)? In each row, check one box that best applies.

   Examples of different users' abilities:

   - No experience
   - Beginner: starting to use and have very little experience
   - Novice user: can use 1–3 programs or features on device/computer with help
   - Intermediate user: can use several programs or features on device/computer without help
   - Advanced user: can use advanced features on device/computer and/or install new programs

	No Experience	Beginner User	Novice User	Intermediate User	Advanced User
Mobile device – smartphones	◯	◯	◯	◯	◯
Mobile device – iPads	◯	◯	◯	◯	◯
Mobile device – eBook readers	◯	◯	◯	◯	◯
Computers (desktop, laptops, and Netbooks)	◯	◯	◯	◯	◯

10. How many years have you used a mobile device?

◯ 0–1 year ◯ 2–5 years ◯ 6–10 years ◯ 11+ years

Preferred Methods and Resources for Learning

When people want to learn to use new technology, they often try to use one or more methods (e.g., work it out by trial and error) or resources (e.g., instructional manual, friend) to help them learn.

The next set of questions focuses on what methods and resources you prefer to use.

11. The following are qualities and features of different methods/resources for learning to use a mobile device. How important are each of the qualities and features are to you?

In each row, circle a number (1 = not at all important, 6 = very important)

	Not at all Important					Very Important
Very affordable (e.g., free)	1	2	3	4	5	6
Easy to access (e.g., convenient, readily available	1	2	3	4	5	6
Easy to understand (e.g., clear, simple language)	1	2	3	4	5	6
Friendly and patient (e.g., not condescending or intimidating)	1	2	3	4	5	6
Interactive (e.g., gives feedback, answers your questions)	1	2	3	4	5	6
Allows me to learn by myself	1	2	3	4	5	6

12. How likely are you to use any of the following learning device methods and resources to learn to use a mobile device? Please rank order the top 7 of your selections. *(If your first choice is to "search the Internet for help" then please put a 1 in the rank column for choice f.)*

	Rank
a) Work it out for myself by trial and error	
b) Use device's help features	
c) Use device's instructional manual	
d) Phone customer or IT support	
e) Use device's tutorial features	
f) Search the Internet for help	
g) Take a class (e.g. library, community center)	
h) Talk to my partner/spouse	
i) Talk to my children	
j) Talk to family/friends from my generation	
k) Talk to family/friends from a younger generation	
l) Talk to my work colleagues	
m) Other (specify): _____	

13. If you had easy access to all of the method and resources listed in question 12, which would you most prefer for learning to use a mobile device?

Please use the letters "a" to "m" to indicate your three preferred choices.

Preferred choices: _____ _____ _____

- A task is a function to be performed or undertaken, i.e. assistance with e-mail, shopping, researching restaurants

14. In examining a tutorial learning method; the following questions, seeks to gather/determine what task requirements would older adults desire from a mobile device tutorial?

	Very Unlikely						Very Likely
a) How likely would you be to use a mobile device tutorial for assistance with e-mail (i.e., sending, receiving, forwarding, deleting, recalling)?	1	2	3	4	5	6	7
b) How likely would you be to use a mobile device tutorial for assistance with health-care information (i.e., diabetes, strokes, heart attacks, locating a doctor, locating a dentist, physical therapy)?	1	2	3	4	5	6	7
c) How likely would you be to use a mobile device tutorial for assistance with shopping (i.e., purchasing groceries, apparel, or electronics)?	1	2	3	4	5	6	7
d) How likely would you be to use a mobile device tutorial for assistance with researching restaurants?	1	2	3	4	5	6	7
e) How likely would you be to use a mobile device tutorial for assistance with financial information (i.e., paying bills, checking account balances, or transferring funds online)?	1	2	3	4	5	6	7
f) Is there any other type of task that you would request assistance for from a mobile device tutorial? If so, please indicate. Please explain why.							

- A feature – a prominent or distinctive aspect, quality, or characteristic, i.e. reminder feature, contact feature, and photos feature.
- FaceTime is similar to Skype; you can use FaceTime to make video calls and allows you to talk face to face with the other person.

15. In examining a tutorial learning method; the following questions, seeks to gather/determine what feature requirements older adults would desire from a mobile device tutorial.

	Very Unlikely						Very Likely
a) How likely would you be to use a mobile device tutorial for assistance with accessing contacts?	1	2	3	4	5	6	7
b) How likely would you use a mobile device tutorial for assistance with accessing reminders?	1	2	3	4	5	6	7
c) How likely would you use a mobile device tutorial for assistance with accessing photos?	1	2	3	4	5	6	7
d) How likely would you use a mobile device tutorial for assistance with accessing the camera?	1	2	3	4	5	6	7
e) How likely would you use a mobile device tutorial for assistance with accessing FaceTime?	1	2	3	4	5	6	7
f) Is there any other type of feature that you would request assistance from a mobile device tutorial? If so, please indicate. Please explain why.							

Helpfulness of Different Learning Methods and Resources

The next question focuses on the helpfulness of the different learning methods and resources.

I am looking at helpfulness, because some people may choose to use learning methods and resources that are the most helpful. Others, however, may instead choose to use a method or resource that is most convenient to access (or some other reason) but are not necessarily the most helpful.

16. How helpful would the following methods and resources be, in learning to use a mobile device? Please rank order the top 7 of your selections. *(If your first choice is to "search the Internet for help" then please put a 1 in the rank column for choice f.)*

	Rank
a) Work it out for myself by trial and error	
b) Use device's help features	
c) Use device's instructional manual	
d) Phone customer or IT support	
e) Use device's tutorial features	
f) Search the Internet for help	
g) Take a class (e.g., library, community center)	
h) Talk to my partner/spouse	
i) Talk to my children	
j) Talk to family/friends from my generation	
k) Talk to family/friends from a younger generation	
l) Talk to my work colleagues	
m) Other (specify):_____	

17. Which of the methods and resources listed in question 16 do you think would be better to help you to retain what you've learned (i.e., remember longer)?

Please use the letters "a" to "m" to indicate your three preferred choices.

Preferred choices: _____ _____ _____

Mobile device Tutorial System for Learning

If you need more space to answer the question below, please write on the backside of this page.

18. It is possible to build a tutorial program for teaching you how to use your mobile device. With such a tutorial, you would connect your device to your home computer, and it would guide you step by step through the kinds of mobile device tasks and features that you would want to carry out. For example, the tutorial could help by telling you what button to press next and give you encouraging feedback (e.g., "Well done!" or "Try pressing this button instead.") as you are performing the task or feature on the mobile device. The tutorial could be designed to act similar to the most helpful person you know.

a.) What benefits do you think this type of tutorial would have to provide, in contrast to getting help from someone (including the most helpful person you know)?

b.) What drawbacks do you think this type of tutorial would have to provide, in contrast to getting help from someone (including the most helpful person you know)?

c.) Would you use such a tutorial to learn to use a mobile device? Why or why not?

d.) How would you like the tutorial to be designed (look and feel)?

e.) Have you ever used a tutorial before? If so, why?

f.) Did you have success with the tutorial?

g.) How long did it take you to become familiar with the tutorial?

Additional Comments

19. If you have any other comments about how you learn to use mobile devices (e.g., what helps/hinders you), please write them here:

Thank you, for taking the questionnaire!

Appendix C

Permission to Use Leung's Survey

Hello Michele,

Thank you for asking. I assume that you're referring to the Learning Methods questionnaire. Yes, you have my permission to use this questionnaire in your research.

Best regards,
Rock

On Oct 7, 2012 10:50 AM, "Michele Washington" <miwashington@verizon.net> wrote:

Greetings Rock:

As I stated in my below e-mail, I am currently pursing my PhD in Information Systems at Nova Southeastern University in Ft. Lauderdale, Florida. I am currently working on my dissertation idea paper regarding the design of a mobile device online tutorial for older adults. In your thesis entitled "Improving the Learnability of Mobile Devices for Older Adults," you created an instrument that in part measures the aspect of older adults and mobile devices. With your permission, I would like to use this portion of the instrument. The usage of the instrument would be properly cited in my dissertation and would greatly help towards achieving my goal in completing my dissertation.

Thank you so much, for your assistance.

Sincerely,

Michele A. Washington

From: Rock Leung [mailto:rockleung@gmail.com]
Sent: Monday, March 05, 2012 2:55 PM
To: Michele Washington
Subject: Re: Dissertation Student with Similar Research Interest

Hi Michele,

Thanks for your e-mail. I've very glad to hear that your graduate research is in older adults, learnability and mobile devices. I don't think I have much more to share beyond my papers and doctoral dissertation. The reference lists in these publications will point you to papers that I thought were important in the area.

cheers,

Rock
--
Website: rockleung.com

On Sat, Mar 3, 2012 at 10:25 AM, Michele Washington <miwashington@verizon.net> wrote:

Greetings Rock:

My name is Michele A. Washington and I'm a Doctoral student at Nova Southeastern University, located in Ft. Lauderdale, Florida. I am in the pre-stages of my dissertation and am performing research in the area, similar to your area: older adults, learnability and mobile devices. I was wondering if there is anything you could share, as I continue with my research? Is there a publication that you have based on your work, which you can share? Is there an instrument or inventory, which you can share? I have reviewed the Center for Research and Education on Aging and Technology Enhancement, from Czaja, Charness, Dijkstra, Fisk, Rogers and Sharit and their various questionnaires.

Additionally, Rock, I have read several of your previous articles and find them quite interesting. This reading includes your thesis: Improving the Learnability of Mobile Devices for Older Adults. The articles include: Multi-layered interfaces to improve Older Adults' Initial Learnability of Mobile Applications (2010), Age-related differences in the initial usability of mobile device icons (2011) and Improving the Learnability of Mobile Device Applications for Older Adults (2009).

Looking forward to hearing from you.

~Warmest Regards

Michele A. Washington
Doctoral Student,
Nova Southeastern University

Appendix D

Older Adults and Mobile Device Qualitative Questions

Focus Group A

1. **Questions 14 (a–e) and 15 (a–e)**. If the participant selected *very likely* (scale 5, 6, 7) for one or more of the task or feature requirements, the following question would be asked.

Tell me more about your response, that you would be likely to use a mobile device tutorial for assistance with the specified task or feature requirement.

2. **Questions 14f and 15f**. If the participant answered, "Is there any other type of task for which you would request assistance. If so, please indicate. Please explain why."

Tell me more about your response regarding another type of task or feature for which you would request assistance.

3. Which task(s) did you find easy to use on the mobile device? Why was it easy to use?

4. Which feature(s) did you find easy to use on the mobile device? Why was it easy to use?

5. Which task(s) would require a tutorial? Why? (*Task:* a function to be performed or undertaken, i.e., assistance with e-mail, shopping, researching restaurants.)

6. Which feature(s) would require a tutorial? Why? (*Feature:* a prominent or distinctive aspect, quality, or characteristic, i.e., reminder feature, contact feature, and photos.)

7. **Question 19.** If the participant added additional comments, ask the participant to elaborate.

Appendix E

Older Adults and Mobile Device Qualitative Questions

Focus Group B

1. **Questions 14 (a–e) and 15 (a–e)**. If the participant selected *very unlikely* (scale 1, 2, 3) for one or more of the task or feature requirements, the following question would be asked.

Tell me more about your response, that you would be unlikely to use a mobile device tutorial for assistance with the specified task or feature requirement.

2. **Questions 14f and 15f**. If the participant answered, "Is there any other type of task for which you would request assistance? If so, please indicate. Please explain why."

Tell me more about your response regarding another type of task or feature for which you would request assistance.

3. Which task(s) did you find difficult to use on the mobile device? Why was it difficult to use?

4. Which feature(s) did you find difficult to use on the mobile device? Why was it difficult to use?

5. Which task(s) would require a tutorial? Why? (*Task:* a function to be performed or undertaken, i.e., assistance with e-mail, shopping, researching restaurants.)

6. Which feature(s) would require a tutorial? Why? (*Feature:* a prominent or distinctive aspect, quality, or characteristic, i.e., reminder feature, contact feature, and photos.)

7. **Question 19.** If the participant added additional comments, ask the participant to elaborate.

Appendix F

Complete list of tables

from Chapter 4

Table F6 - Experience: Learn, Forget, and Problems with Mobile Devices: Frequencies and Percentages for Nominal Variable

n = 113

Category	*n*	Percentage
Want to learn (Excluding the iPad)		
0<1 Time a Month	8	7.1%
1–3 Times a Month	25	22.1%
1 Time a Week	28	24.5%
2–4 Times a Week	11	9.7%
1 Time a Day	20	17.7%
1+ Times a day	1	0.9%
Do Not Have iPad	20	17.7%
Forgot to Do Something (Excluding the iPad)		
0<1 Time a Month	4	3.5%
1–3 Times a Month	32	28.3%
1 Time a Week	34	30.1%
2–4 Times a Week	11	9.7%
1 Time a Day	17	15.0%
1+ Times a day	1	0.9%
Do Not Have iPad	14	12.4%
Encountered a Problem (Excluding the iPad)		
0<1 Time a Month	6	5.3%
1–3 Times a Month	24	21.2%
1 Time a Week	41	36.3%
2–4 Times a Week	10	8.8%
1 Time a Day	15	13.3%
1+ Times a day	2	1.8%
Do Not Have iPad	15	13.3%
Want to Learn – iPad		
0<1 Time a Month	7	6.2%
1–3 Times a Month	12	10.6%
1 Time a Week	6	5.3%

2–4 Times a Week	8	7.1%
1 Time a Day	8	7.1%
1+ Times a day	64	56.6%
Do Not Have iPad	8	7.1%
Forget to Do – iPad		
0<1 Time a Month	5	4.4%
1–3 Times a Month	10	8.8%
1 Time a Week	11	9.7%
2–4 Times a Week	8	7.1%
1 Time a Day	4	3.5%
1+ Times a day	68	60.2%
Do Not Have iPad	7	6.2%
Encountered a Problem – iPad		
0<1 Time a Month	4	3.5%
1–3 Times a Month	8	7.1%
1 Time a Week	14	12.4%
2–4 Times a Week	7	6.2%
1 Time a Day	5	4.4%
1+ Times a day	68	60.2%
Do Not Have iPad	7	6.2%

Table F10 - Likelihood to use Learning Device Methods and Resources: Frequencies and Percentages for Nominal Variables

n = 113

Category	*n*	%
First Choice		
Work it Out by Trial/Error	18	15.9
Use Device Manual	17	15.0
Talk to Children	16	14.2
Talk to Spouse	15	13.3
Use Device Help	14	12.4
Search the Internet	10	8.8
Take a Class	6	5.3
Use Device Tutorial	6	5.3
Talk to My Generation	5	4.4
Talk to Younger Generation	4	3.5
Other (Talk to Verizon in Store)	1	0.9
Phone Customer Support	1	0.9
Second Choice		
Use Device Help	18	15.9
Use Device Manual	17	15.0
Talk to Children	16	14.2
Search the Internet	12	10.6
Use Device Tutorial	10	8.8
Talk to Younger Generation	9	8.0
Talk to My Generation	9	8.0
Work it Out by Trial/Error	8	7.1
Take a Class	5	4.4
Talk to Spouse	5	4.4
Phone Customer Support	3	2.7
Talk to Colleague	1	0.9
Third Choice		
Use Device Tutorial	16	14.2
Take a Class	15	13.3
Use Device Help	14	12.4
Work it Out by Trial/Error	12	10.6
Use Device Manual	10	8.8
Talk to Children	9	8.0
Talk to Younger Generation	9	8.0

Talk to My Generation	8	7.1
Phone Customer Support	8	7.1
Search the Internet	7	6.2
Talk to Colleague	4	3.5
Talk to Spouse	1	0.9

Fourth Choice

Phone Customer Support	16	14.2
Search the Internet	14	12.4
Use Device Tutorial	14	12.4
Talk to Spouse	13	11.5
Work it Out by Trial/Error	12	10.6
Talk to My Generation	9	8.0
Use Device Manual	8	7.1
Talk to Children	7	6.2
Talk to Younger Generation	7	6.2
Take a Class	6	5.3
Use Device Help	6	5.3
Talk to Colleague	1	0.9

Fifth Choice

Work it Out by Trial/Error	14	12.4
Take a Class	13	11.5
Use Device Help	13	11.5
Search the Internet	11	9.7
Talk to Children	10	8.8
Phone Customer Support	10	8.8
Use Device Tutorial	10	8.8
Use Device Manual	9	8.0
Talk to Younger Generation	9	8.0
Talk to My Generation	7	6.2
Talk to Spouse	6	5.3
Talk to Colleague	1	0.9

Sixth Choice

Use Device Help	16	14.2
Search the Internet	15	13.3
Phone Customer Support	13	11.5
Work it Out by Trial/Error	12	10.6
Talk to Younger Generation	11	9.7
Talk to Children	9	8.0
Talk to My Generation	9	8.0
Take a Class	7	6.2

Use Device Manual	7	6.2
Talk to Spouse	6	5.3
Use Device Tutorial	6	5.3
Talk to Colleague	2	1.8
Seventh Choice		
Phone Customer Support	13	11.5
Work it Out by Trial/Error	13	11.5
Talk to Younger Generation	13	11.5
Use Device Manual	12	10.6
Take a Class	11	9.7
Talk to Children	9	8.0
Talk to My Generation	9	8.0
Talk to Spouse	9	8.0
Use Device Help	8	7.1
Search the Internet	8	7.1
Use Device Tutorial	7	6.2
Talk to Colleague	1	0.9

Table F12 - Easy Access to All Methods and Resources: Preferred Choices: Frequencies and Percentages for Nominal Variables

n = 113

Category	*n*	%
First Preferred Method		
Talk to Children	18	15.9
Use Device Manual	18	15.9
Work it Out by Trial/Error	16	14.2
Take a Class	15	13.3
Use Device Help	12	10.6
Talk to Spouse	10	8.8
Use Device Tutorial	7	6.2
Search the Internet	6	5.3
Phone Customer Support	4	3.5
Talk to My Generation	3	2.7
Talk to Work Colleagues	2	1.8
Talk to Younger Generation	2	1.8
Second Preferred Method		
Use Device Help	24	21.2
Use Device Manual	16	14.2
Talk to Children	14	12.4
Take a Class	11	9.7
Search the Internet	10	8.8
Talk to Younger Generation	10	8.8
Talk to My Generation	7	6.2
Use Device Tutorial	7	6.2
Phone Customer Support	5	4.4
Work it Out by Trial/Error	6	5.3
Talk to Spouse	3	2.7
Third Preferred Method		
Work it Out by Trial/Error	15	13.3
Use Device Tutorial	15	13.3
Phone Customer Support	13	11.5
Use Device Help	13	11.5
Use Device Manual	12	10.6
Take a Class	11	9.7
Talk to Younger Generation	11	9.7
Talk to My Generation	7	6.2

Talk to Children	7	6.2
Search the Internet	8	7.1
Talk to Colleague	1	0.9

Table F18 - Helpful Methods and Resources: Frequencies and Percentages for Nominal Variables

n = 113

Category	*n*	Percentage
First Choice		
Use Device Manual	22	19.5%
Work it Out by Trial/Error	19	16.8%
Use Device Help	17	15.0%
Talk to Children	17	15.0%
Talk to Spouse	10	8.8%
Search the Internet	8	7.1%
Talk to My Generation	6	5.3%
Take a Class	5	4.4%
Use Device Tutorial	3	2.7%
Phone Customer Support	2	1.8%
Talk to Younger Generation	2	1.8%
Other	1	0.9%
Work it Out by Trial/Error	1	0.9%
Second Choice		
Use Device Manual	18	15.9%
Use Device Help	17	15.0%
Talk to Children	15	13.3%
Use Device Tutorial	13	11.5%
Talk to My Generation	10	8.8%
Work it Out by Trial/Error	10	8.8%
Talk to Younger Generation	10	8.8%
Phone Customer Support	7	6.2%
Talk to Spouse	5	4.4%
Take a Class	4	3.5%
Search the Internet	3	2.7%
Talk to Colleague	1	0.9%
Third Choice		
Phone Customer Support	18	15.9%
Work it Out by Trial/Error	15	13.3%
Use Device Help	12	10.6%
Talk to Younger Generation	12	10.6%
Search the Internet	11	9.7%
Use Device Manual	11	9.7%

Talk to My Generation	9	8.0%
Take a Class	9	8.0%
Use Device Tutorial	8	7.1%
Talk to Spouse	5	4.4%
Talk to Children	3	2.7%

Fourth Choice

Use Device Tutorial	19	16.8%
Take a Class	16	14.2%
Use Device Help	11	9.7%
Talk to Children	10	8.8%
Search the Internet	10	8.8%
Talk to Younger Generation	10	8.8%
Use Device Manual	9	8.0%
Phone Customer Support	8	7.1%
Talk to Spouse	7	6.2%
Talk to My Generation	6	5.3%
Work it Out by Trial/Error	6	5.3%
Talk to Colleague	1	0.9%

Fifth Choice

Search the Internet	16	14.2%
Take a Class	15	13.3%
Use Device Help	12	10.6%
Phone Customer Support	11	9.7%
Use Device Tutorial	11	9.7%
Talk to Younger Generation	10	8.8%
Talk to My Generation	10	8.8%
Talk to Children	9	8.0%
Use Device Manual	6	5.3%
Work it Out by Trial/Error	7	6.2%
Talk to Spouse	5	4.4%
Talk to Colleague	1	0.9%

Sixth Choice

Use Device Help	14	12.4%
Search the Internet	14	12.4%
Work it Out by Trial/Error	14	12.4%
Talk to Children	12	10.6%
Talk to My Generation	11	9.7%
Phone Customer Support	11	9.7%
Talk to Younger Generation	10	8.8%
Talk to Spouse	8	7.1%

Take a Class	6	5.3%
Use Device Tutorial	6	5.3%
Use Device Manual	4	3.5%
Talk to Colleague	3	2.7%
Seventh Choice		
Work it Out by Trial/Error	16	14.2%
Use Device Tutorial	14	12.4%
Phone Customer Support	12	10.6%
Talk to Younger Generation	12	10.6%
Use Device Help	10	8.8%
Use Device Manual	10	8.8%
Search the Internet	9	8.0%
Take a Class	9	8.0%
Talk to Children	8	7.1%
Talk to My Generation	7	6.2%
Talk to Spouse	6	5.3%

Table F20 - Helpful Methods and Resources Preferred Choices: Frequencies and Percentages for Nominal Variables

n = 113

Category	*n*	Percentage
First Preferred Method		
Work it Out by Trial/Error	24	21.2%
Talk to Children	19	16.8%
Use Device Help	14	12.4%
Use Device Manual	14	12.4%
Take a Class	13	11.5%
Search the Internet	7	6.2%
Use Device Tutorial	6	5.3%
Talk to Spouse	5	4.4%
Talk to My Generation	4	3.5%
Talk to Younger Generation	4	3.5%
Phone Customer Support	2	1.8%
Use Device Manual	1	0.9%
Second Preferred Method		
Use Device Help	22	19.5%
Use Device Manual	17	15.0%
Talk to Children	12	10.6%
Work it Out by Trial	10	8.8%
Talk to Younger Generation	10	8.8%
Use Device Tutorial	8	7.1%
Talk to My Generation	8	7.1%
Take a Class	7	6.2%
Talk to Spouse	7	6.2%
Search the Internet	6	5.3%
Phone Customer Support	5	4.4%
Use Device Manual	1	0.9%
Third Preferred method		
Use Device Help	13	11.5%
Use Device Manual	13	11.5%
Phone Customer Support	13	11.5%
Work it Out by Trial/Error	13	11.5%
Use Device tutorial	11	9.7%
Talk to Younger Generation	10	8.8%
Search the Internet	9	8.0%

Talk to My Generation	9	8.0%
Take a Class	8	7.1%
Talk to Children	7	6.2%
Talk to Spouse	7	6.2%

Table F32 - Likelihood to Use a Learning Device Methods and Resources: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables

n = 5

Category	*n*	%
First Choice		
Use Device Help	1	20
Search the Internet	1	20
Work it Out by Trial/Error	1	20
Use Device Tutorial	2	40
Second Choice		
Use Device Help	1	20
Search the Internet	2	40
Use Device Manual	1	20
Use Device Tutorial	1	20
Third Choice		
Talk to Children	1	20
Take a Class	2	40
Talk to Spouse	1	20
Use Device Tutorial	1	20
Fourth Choice		
Talk to Children	2	40
Talk to My Generation	1	20
Talk to Spouse	1	20
Phone Customer Support	1	20
Fifth Choice		
Search the Internet	1	20
Use Device Manual	1	20
Talk to My Generation	1	20
Work it Out by Trial/Error	2	40
Sixth Choice		
Talk to Children	1	20
Take a Class	2	40
Use Device Help	2	40
Seventh Choice		
Use Device Manual	2	40

Talk to My Generation	1	20
Phone Customer Support	1	20
Work it Out by Trial/Error	1	20

Table F34 - Likelihood to Use a Learning Device Methods and Resources: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables

n = 5

Category	*n*	%
First Choice		
Take a Class	1	20
Use Device Manual	1	20
Talk to Spouse	2	40
Work it Out by Trial/Error	1	20
Second Choice		
Talk to Children	2	40
Talk to Colleague	1	20
Use Device Help	1	20
Use Device Manual	1	20
Third Choice		
Take a Class	1	20
Search the Internet	1	20
Talk to My Generation	1	20
Use Device Tutorial	2	40
Fourth Choice		
Talk to Spouse	1	20
Phone Customer Support	2	40
Use Device Tutorial	1	20
Talk to Younger Generation	1	20
Fifth Choice		
Talk to Children	1	20
Talk to Spouse	1	20
Work it Out by Trial/Error	1	20
Use Device Tutorial	1	20
Talk to Younger Generation	1	20
Sixth Choice		
Talk to Children	1	20
Use Device Help	1	20
Talk to My Generation	2	40
Talk to Younger Generation	1	20

Seventh choice		
Use Device Help	1	20
Search the Internet	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Talk to Younger Generation	1	20

Table F42 - Helpful Methods and Resources: Learning a Mobile Device: Focus Group A (Very Likely): Frequencies and Percentages for Nominal Variables

n = 5

Category	*n*	%
First Choice		
Talk to Children	1	20
Use Device Help	2	40
Work it Out by Trial/Error	2	40
Second Choice		
Use Device Help	2	40
Work it Out by Trial/Error	2	40
Use Device Tutorial	1	20
Third Choice		
Take a Class	1	20
Search the Internet	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Phone Customer Support	1	20
Fourth Choice		
Take a Class	3	60
Search the Internet	1	20
Talk to My Generation	1	20
Fifth Choice		
Talk to Children	1	20
Search the Internet	1	20
Talk to Spouse	1	20
Use Device Tutorial	1	20
Talk to Younger Generation	1	20
Sixth Choice		
Talk to Children	1	20
Talk to My Generation	2	40
Talk to Spouse	1	20
Use Device Tutorial	1	20
Seventh Choice		

Search the Internet	1	20
Phone Customer Support	1	20
Use Device Tutorial	1	20
Talk to Younger Generation	2	40

Table F44 - Helpful Methods and Resources: Learning a Mobile Device: Focus Group B (Very Unlikely): Frequencies and Percentages for Nominal Variables

n= 5

Category	*n*	%
First Choice		
Talk to Children	1	20
Search the Internet	1	20
Use Device Manual	1	20
Talk to Spouse	1	20
Use Device Tutorial	1	20
Second Choice		
Talk to Children	1	20
Use Device Help	1	20
Talk to Spouse	2	40
Work it Out by Trial/Error	1	20
Third Choice		
Talk to Children	1	20
Take a Class	1	20
Talk to My Generation	1	20
Phone Customer Support	1	20
Talk to Younger Generation	1	20
Fourth Choice		
Search the Internet	1	20
Talk to My Generation	1	20
Talk to Spouse	1	20
Work it Out by Trial/Error	1	20
Talk to Younger Generation	1	20
Fifth Choice		
Take a Class	1	20
Work it Out by Trial/Error	1	20
Use Device Tutorial	2	40
Talk to Younger Generation	1	20
Sixth Choice		
Take a Class	2	40
Use Device Help	1	20

Phone Customer Support	1	20
Work it Out by Trial/Error	1	20
Seventh Choice		
Talk to Children	1	20
Use Device Help	2	40
Search the Internet	1	20
Use Device Manual	1	20

Table F50 - Differences and Comparisons for the Total Population and Focus Groups A (Very Likely) and B (Very Unlikely) for the Various Variables

	Total population	**Focus Group A (Very Likely)**	**Focus Group B (Very Unlikely)**
Likelihood	working it out by trial/error use device manual talk to children talk to spouse use device help	use device help search the Internet work it out trial/error use device tutorial	take a class use device manual talk to spouse work it out/trial/error
Easy Access	talk to children use device manual work it out trial/error take a class use device help talk to spouse	use device help work it out/trial/error use device tutorial	take a class use device tutorial talk to spouse work it out/trial/error
Helpful methods	use device manual work it out trial/error use device help talk to children talk to spouse search the Internet	talk to children use device help work it out trial/error	talk to children search the Internet use device manual use device tutorial talk to spouse
Methods and resources/preferred methods	work it out/trial/error talk to children use device help use device manual take a class search the Internet	work it out by trial/error use device tutorial talk to younger generation	Take a class use device manual talk to spouse work it out trial/error
Variances of the task requirements	Total Population	Focus Group A	Focus Group B
highest means	e-mail	financial	e-mail and health
second highest means	health	shopping	restaurant and financial
third highest means	shopping	health and restaurant	shopping
fourth highest means	restaurant	e-mail	
fifth highest means	financial		

Variances of the feature requirements			
highest means	Photos	reminders and photos	photos
second highest means	camera	camera	reminders
third highest means	contacts	contacts and FaceTime	contacts, camera, and FaceTime
fourth highest means	reminders		
fifth highest means	FaceTime		

Table F52 - Mobile Device Tutorial System for Learning (Question 18): Total Population

A. Benefits	Participants' Responses
Access	More reading Accessible at any time Privacy, availability, and easy access Ready access to instruction
Availability	Would provide easier access; no need to wait for availability (24/7) of child of older adult Easy to schedule at one's own convenience, as opposed to depending on another person's availability of time Could use when most helpful person is not available Could use it when you need it, at your own pace Would be more convenient and available Would be available at all times as long as the computer works and you understand the language Would be readily available—kind of hands-on It would be available whenever I needed it You could refer to, when alone That the help would always be available
Accuracy	I would think the tutorial, if done well, would be more accurate than a person
Encouragement	One very important benefit would be feedback, encouraging me, since I don't feel very comfortable about technology Always there, nonjudgmental Enables the participant to keep on track Provides hands-on learning and helps to build one's confidence in resolving any technical issues independently You can repeat the instructions without feeling stupid The tutorial may give me instant gratification and would build my confidence in accessing new features of the tutorial Would encourage me to try further tasks on my own Time factor repetition of instructions as needed without concern of time Use is not time dependent Would not have to take time from others It would save time and face time, since some of us are not so computer literate I could do it on my own time and in my own home as often as needed, until I mastered the task Save time, can refer back when needed

	You can go at your own speed/pace
Skill Set of Tutorial	Tutorial would have much more knowledge and skill than the most helpful person Would possibly know the answers to all the questions that I need to know Helpful, especially with retention and experience on hand It presents a complete picture vs. parts put together The tutorial has the most time and has been prepared very well to meet the student's needs. The person helping may not have enough time Hopefully, all questions could be answered and phrased correctly. Might need help if mobile device shuts down/freezes and can't restart Tutorial would be systematic in nature, step-by-step through understanding, address major and minor errors, experience building It would be more patient You are able to walk through the hands-on processes immediately Get familiar with the keyboard, buttons, and touchscreen
Retention	Retain use after learning, make myself use new tools and methods This type of tutorial would help me remember what I want to accomplish and not depend on a person Helpful, especially with retention and experience on hand I could read and re-read
Usefulness	Sounds like it would be useful It would be the ideal thing for me, and probably for most senior citizens I believe it would be extremely useful Would be more patient Would be easier to understand Quicker, problems are solved Faster, direct Understand how to use the task and features It would benefit both getting help from someone, including the most helpful person you know
Concerns of a Tutorial	If instructions are too long and drawn out, they would tend to confuse me I'm not very patient with tutorials and rarely use one I find tutorials very cryptic and also incomplete I am very hesitant about damaging the device or locking up

	First, I would need to know how to connect it to my computer, then the help would be non-challenging of my performance Become too dependent, need to use a device to become familiar with it; this should not take too long

B. Drawbacks	**Participants' Responses**
Ease of Use	Ease of operations It may take a bit longer to learn Limited interaction of dialogue The tutorial would take more time to learn, it would be quicker to ask a person, especially if you just had one question I have found tutorials often are not geared to the actual product (i.e. push "alt when there is no alt button – even when it supposedly fits the device)
Understanding	If the participant was unable to understand the instructions If you mess up with the tutorial has build in help – ability to back-up May not think like me – little variability Words might not be understood Might not understand it as well as you would understand a person, cannot ask a question Some people can't comprehend what is read If the tutorial was not clear and comprehensive
Cannot Ask questions	Cannot ask questions you want if these questions are not programmed into the device—a live person can assist Cannot ask questions Once cannot talk—can ask questions of a person, not of the tutorial Would not be able to ask questions on the spot It doesn't answer my questions
User Concerns	Would not consider user needs for information Spend too much time on obvious features (not needing tutorial) Lack of quick feedback on problems The initial learning curves of the tutorials. I believe including many examples is essential to reducing anxiety of learning and using the tutorial system Would not know what I already know, and I would have to sit through sets I already know

	I seem to learn better and retain processes better with one-on-one instructions The attention span of some people I would need more person-to-person contact and feedback I learn better by doing it myself and not depending on anyone Face-to-face communications is more helpful May not accurately explain my question There may be questions that are not addressed in the tutorial May expect too much of the tutorial
Information Needs	Too much information from tutorial If I had a question which was not listed on the tutorial It may not be able to answer specific questions Time to learn the tutorial It would take way more time than just asking a person Some tutorials are wordy—they talk too much before telling you what you are looking for It knows the answers to all the questions that I don't need at the moment Pertinent details would be omitted The tutorial may not meet the student's needs
None	Do not feel there would be any drawbacks, in the fact, if the device worked properly Can't think of any No drawbacks—unless one needs personal reinforcement

C. Use a tutorial to learn to use a mobile device	**Participants' Responses**
Why?	Would assist me Eager to relieve my daughter Yes, if easy to use Yes, because it should have all the info I need to use the device Yes, time permitting Yes, the tutorial would assist me in solving problems and provide a resource for solving future issues that I may encounter Yes, if that's all that's available Probably, if it was provided with the device If it was really helpful If repetition is desired In the interest of time and patience

	I can go at my own speed and repeat the instruction without feeling stupid
	Technology is opening wide and needs a lot of skill to manipulate the device. Children just understand it as if they are born with it. But we, the adults, have the most issues trying to use the device.
	I would give it a try
	If I could select the questions
	Use the tutorial so as not to waste someone's time, as so not to feel stupid
	Kind of like learning a foreign language
	I would prefer a tutorial that talks to me over one I need to read. I have trouble figuring out what I read in a manual. I do many assumptions on the written work.
	Because it would be available when I need it.
	Only if it is to the point, without leaving out steps
	Very possible, I'm lazy
	Easily accessible, it would be available
	If the tutorial was uncomplicated to users, friendly, I would probably use it
	I could use it at my own pace, as the need become obvious
	Depends totally on the device; many mobile devices are pretty self-explanatory
	Yes, to being with, until I become used to the device
	If inexpensive
	Yes, if it was comprehensive and complete. Too often things profess to do what it actually doesn't do. When I find that, I won't use it.
	I am willing to try a new resource over other means of learning
	I can use the tutorial at my leisure
	Based on ease of use
	Maybe, I am very mobile device shy
	I could learn at my own pace
Why not?	Prefer to work through my own issues
	Not completely because I frequently have a different priority for the subjects
	Probably not, but then if it was teaching something that I would really want to learn, then maybe
	No, not if I could learn to use it by another method
	No, you want an answer to a problem, you want it as soon as possible, not to have to listen to a tutorial, which might not answer your question
	No, can't follow manuals

Probably not, I've always been able to use a device without the help of the device tutorial's help features

D. Design of Tutorial (Look and Feel) – Participants' Responses

Direct, tested on seniors for understanding – large type
Details clearly illustrated
Must be clear and well lit
Allows you to skip sections you don't need; provides brief quiz to test knowledge
Question-and-answer format
Simple to include a simple screen, large print, and nontechnical jargon/verbiage, instructions
Also include picture/screen shots that mimic the screen on the iPad
Keep it simple, stupid (KISS)
Comfortable and simple user interface – means to escape, if you want to make a mistake and want to repeat a portion or access another area of the programs; you want to learn a particular problem
Simple and precise, friendly
Easy to understand
Must be of a professional level
Include screenshots, pictures
Swipe features
Wide screen, large print, colorful, louder audio, encouragement prompts
Pictures of where I am and where I'm going; talk slow enough to comprehend; have the ability to repeat instructions
Have it sound like someone is there guiding you
Easy to look at, read, and listen; able to give instructions
Look and feel is not important to me; what is important is that it is easy to understand and simple, with links to more complicated areas and/or more details about a given area
It should include examples and explanations of how to use all features
It should not be too difficult or too long; should test your knowledge of what you have learned so that you could go back and review
Step-by-step guidance with ability to move forward and back
Must be efficient, comprehensive, to the point, and provide a step-by-step approach
Have attractive colors for both male and female in light in weight due to a persons' hands-on skills in movement
Have or use a program outlining every move
Very explainable, simple as ABC
Larger print, user friendly, easy access

E. Have you ever used a tutorial before? – Participants' Responses

Yes, to scan documents
For appliance instructions
To use features
Internet tutorial for instructions when knitting
Several features on Apple products

MAC tutorial
Computer programs
Trying techniques in Photoshop
On my desktop computer, but I often just stopped out of boredom or impatience
To improve my speed of accuracy on the keyboard
Access to tutorial regarding smart phones
Programming for AT&T courses
Voice-mail, modem, TiVo, and DVR set up
Training in acquiring computer skills
Malfunction plumbing issues with toilet; I used the tutorial video to educate myself on how to fix the problems
The ones available on the iPad
Dreamweaver and CSS
Computer set-up
When I first used a computer, it was excellent because it was "hands-on" and the directions actually fit what I was seeing on the search

F. Success with a Tutorial – Participants' Responses

Yes	Yes, some completely, some partially
	Immediately, once accessed
	Yes, for Kindle Fire for movies, books, Netflix, New York Times
	Partially; gave up after it took too long
	Depends on the tutorial program; most were easy to use
No	Too complicated, so I quit
	Mostly read the manuals
	Not really, tutorial was poorly designed; the tutorial expected me to know things I didn't know

G. How long did it take you to become familiar with the tutorial? – Participants' Responses

After a person assisted, about 30 minutes
Depends on the program; many programs are frustrating because they are not specific to my needs
Not long
Never became familiar
Not very long—just long enough to learn the technological terms
Two months or more
Ten minutes
A few tries
It depends on the amount of use

Not long
Did not take long
Never did because I gave up
Maybe two or three times going through the screens
Just went step by step
About five or six days
Still not familiar with all of its features and get help from my children or nieces and neighbors when I need help
No time at all, not sure how long, only a few minutes, first time through
It depends on the subject/project—average time three to four weeks
A week, immediately, approximately three months, it took several tries over a week, it depended on the product
One hour
One month, it was a group section
Hard to say; I used it at different times when I need info about a feature; I used the index to look up what I needed.

19. Other Comments – Participants' Responses

Because I am 91 years old, it takes a little longer to absorb information
I get frustrated easily and give up fast if I can't find the answer
Practice is most helpful
I would like a tutorial that would direct me to how to delete everything on a computer; I am about to get rid of it
Having a individual on hand to answer the individual's question when it arises is completely impossible
My kids are helpful to a point, then they lose patience/get bored with the questions; I use Internet on the iPad or smart phone for tutorial; my older kindly has a good downloadable help booklet, but sometimes I have trouble finding sections or the answers.
Don't understand the technical terms on how to find things on the keyboard
Help screens tend to assume too much on the part of the user; also, the user needs to know the correct way to ask the questions to obtain a response; this is the most difficult part of the help feature
The best way to learn is to use them, is to actually use them; that is the way you would encounter questions and/or problems
Read the manual, or look online if all else fails
I have to make the time to use them; I am more a telephone/face-to-face person—old- fashioned way
Would like to expand my knowledge to be able to use more of what the mobile device offers
Very exciting to learn something new—enhancement of skills
I think technology is tremendous; great ways to help us live better
Table 55

Table F53 - Question 18: Mobile Device Tutorial System for Learning: Focus Groups A (Very Likely) and Focus Group B (Very Unlikely) Responses

Focus Group A (Very Likely)	Focus Group B (Very Unlikely)
A. Benefits	
1. The tutor has the most time and has been developed very well; the person helping may not have enough time 2. I like feedback encouraging me because I don't feel comfortable with technology 3. Tutorials would be available all the time (24/7) 4. Would not have to worry about bothering my children 5. Could listen to the tutorial several times, to make sure I understand the instructions	1. Would enable me to use the tutorial at my own pace 2. Would not have to refer to the manuals or contact the help representative 3. Would listen and listen until I understand what the tutorial is saying 4. Would be easier for me to understand how the device works 5. The directions could be repeated several times
B. Drawbacks	
1. Both the tutorial and the person to help, may not meet my needs 2. Expect too much of me, or maybe I don't give myself enough credit for knowing some of the technology 3. Bot being able to understand the directions 4. Would not be able to ask questions 5. May take too long to learn to use the device	1. Unable to understand the directions 2. May not think like me 3. Cannot ask questions 4. May take me longer to learn 5. May give me more information than I want to know
C. Use a Tutorial to Learn to Use a Mobile Device	
1. Technology is opening wide, and a person needs a lot of skill to manipulate the device; Children understand it as if they are born with it, but we, the adults, have challenges 2. A step-by-step program would be most helpful 3. Yes, if it was easy to use 4. Yes, if it was available 5. yes, if I all other means, were not available	1. Probably not, but if I really needed to, I would 2. No, I would use the manual 3. Tutorials may be difficult to operate 4. May have to pay for it 5. May answer everything but my question
D. Design of Tutorial (Look and Feel)	
1. Large type 2. Simple and easy to use 3. User friendly, easy to access 4. Well lit; bold type 5. Step-by-step guidance	1. Large type 2. Details explained 3. Wide screen 4. Simple 5. Allows mistakes to be made

E. Have you ever used a tutorial before?	
1. Yes, for DVD	1. How to build a bookcase
2. Yes, for fixing a faucet	2. How to set up and assemble a chair
3. Yes, learning how to work a fax	3. Setting up a speaker system

F. Success with a Tutorial	
1. Yes, able to set up my DVD	1. Yes, able to build the bookcase
2. Yes, able to fix my faucet	2. Yes, able to set up the chair
3. Yes, able to work the fax	3. No, too complicated, went back to the paper instructions

G. How long did it take you to become familiar with the tutorial?	
1. Thirty minutes	1. Thirty minutes
2. Not long	2. After a person assisted, about 30 minutes
3. Ten minutes	3. Not long

19. Other comments	
1. Tutorial may be helpful	1. If it is not too complicated; will give up
2. Willing to give it a try	2. If not too difficult, would give it a try; it may work
3. If it is not too complicated	
4. If it is friendly and easy to use	

Table F54 - Older Adults and Mobile Device Qualitative Questions: Participants' Responses

Focus Group A - Very Likely

Tell me more about your response, that you would be likely to use a mobile device tutorial for assistance with the specified task or features requirements.
1. Feature – FaceTime: Using FaceTime to contact family members and close friends; would like to actually see my grandchildren 2. Task – E-mail: Would like to be able to recall/retrieve a deleted message; how to bring it back from trashcan 3. Task – Contacts: How would a user be able to call someone from contacts? 4. Task – Photos: How would a user organize photos and videos (i.e., grandchildren, trips, etc.) 5. Task and Feature: Love trying out new things on the mobile device; would be willing to "play around" with all of the features—it can't hurt

Tell me more about your response regarding another type of task or feature for which you would request assistance.
1. Feature – Using Siri: Would like to have a tutorial regarding Siri 2. Feature – Navigation: I travel a lot; would like to have a tutorial to program the navigation system 3. Feature – Dragon Speak: Would like to have a tutorial for this software; would be able to call my children, without having to type 4. Feature – Taking a Spanish class: Would like a tutorial on how to download a Spanish program and then how to work the program 5. Feature – Just joined Weight Watchers: Would like to have a tutorial that would keep track of Weight Watchers

Which task(s) did you find easy to use on the mobile device? Why was it easy to use?
1. Sending and receiving e-mails; have done it before on laptop 2. Sending and receiving e-mails; have done it before on laptop 3. Sending and receiving e-mails; it's the same as performing the function on a laptop and desktop 4. Sending and receiving e-mails; it's the same as performing the function on a laptop and desktop 5. Sending and receiving e-mails, it's the same as performing the function on a laptop and desktop

Which feature(s) did you find easy to use on the mobile device? Why was it easy to use?
1. Accessing Contacts: function not difficult to perform, just click on the "+" and follow the directions for new contact; fun to add ringtone and text tone, so you will know who is contacting you 2. Accessing Reminders: follow the directions, "click on "+" then just use the keyboard to type in the reminders; good for me for setting up my doctor's appointments 3. Photos: just click on photos, able to see photos and photos that are albums, able to see camera roll, my photo stream, and videos 4. Accessing Contacts: user friendly, select the "+" and follow the directions

5. Accessing Contacts: easy to use, easy to access, icon displays an address book; easy to know what it is

Which task(s) would require a tutorial? Why?

1. Accessing the pharmacy, letting me know when my prescriptions are ready
2. Setting up folders within e-mail; want to have folders for church, family, and school
3. Have been receiving e-mails, stating that my inbox is too large; want to be able to determine the size of my e-mail, and delete e-mails of large size (pictures)
4. Would like to group and ungroup apps; want to group like apps (i.e., Safeway, Giant, and Wegman)
5. Coupons: how to group coupons according to what you are buying

Which feature(s) would require a tutorial? Why?

1. Setting up a Wi-Fi: hard to do; sometimes cannot understand the manual
2. How to set up newsstand: I do a lot of reading and would like to know how to put eBooks on my mobile device
3. Game Center: would like to know how to add games (Bingo) to my mobile device
4. App Store: would like to know how to go about seeing what are the various apps out there; would like an app alert to let me know when new apps come out regarding what I like, which is working puzzles, word games
5. I teach Bible school to the youth; would like a tutorial that could introduce me to various activities that I could have for the youth

Any Additional Comments

I like technology and would like to keep up with the latest and greatest!

Focus Group B - Very Unlikely

Tell me more about your response, that you would unlikely use a mobile device tutorial for assistance with the specified task or features requirements.

1. Task – Health care: What type of security would be on the device? How secure would the device be if I used it to retrieve/submit health information.
2. Task – Financial: What type of security would be on the device to protect my financial information?
3. All Tasks and Features: How long would it take to figure out how to do the specific task or feature? Tutorials can be tedious.
4. Tasks and Features: Reading all the tutorial information on a mobile device can be quite challenging. If the type was larger, I would be scrolling a lot just to read. I would rather read the manual.
5. Feature – Camera/Photos: Would rather stick with my digital camera; I can easily download from my digital camera to my home computer. How can I download the pictures from the mobile device?

Tell me more about your response regarding another type of task or feature for which you would request assistance.
1. I like to play games; tutorial on the specific games that I would like to play, such as Scrabble, crosswords, and Monopoly 2. I want to communicate with my family; tutorial on how to use Facebook, Twitter, and other social medias for us (older adults) 3. Feature: beginner tutorial on knitting 4. Decorating: tutorial on flower and cake decorating 5. Grocery stores: tutorial on comparing costs of food at grocery stores, such as Safeway, Giant, and Wegman; tutorial on food sales

Which task(s) did you find difficult to use on the mobile device? Why was it difficult to use?
1. Grocery Shopping: couldn't find out how to store the coupons to the laptop 2. Financial information: not comfortable going into my bank using a store's Wi-Fi; privacy concerns 3. Grocery Shopping: want to be able to save prices for items and unable to cut and paste and store in which application 4. Health-Care Information: Want to be able to compare medicine prices from various stores (i.e., CVS, Wal-Mart, Walgreens); unable to store information 5. Restaurants: for some restaurants, unable to see the menu, to see if they have senior citizens prices

Which feature(s) did you find difficult to use on the mobile device? Why was it difficult to use?
1. FaceTime: need to be sure that the person who I want to see has an iPad; not too many older adults have iPads, although I can chat with my daughter who has an iPad 2. Camera: unable to crop pictures; not a function within the current iPad functionality 3. iTunes: previously had problem setting up an account; had to go back to the store to obtain assistance 4. Security: unable to set up password lock 5. Music: how to group music into genres (oldies and gospel)

Which task(s) would require a tutorial? Why?
1. How to hook up a printer, to print from e-mail, contacts, notes, etc. 2. How to store things that you find on the Internet, i.e., types of flowers and recipes 3. Libraries: how to determine if eBooks are available in a particular library 4. Foreign Language: how to download a foreign-language app to the iPad 5. Transfer from One Media to Another: how to transfer books from Kindle

Which feature(s) would require a tutorial? Why?
1. The various settings with the iPad, such as Notification Center, Control Center, Do Not Disturb, iCloud, and Privacy 2. Netflix, how to save videos to my laptop 3. Watching movies; how to change the brightness and sharpness of the movie

4. Playing games, such as Scrabble, Monopoly, and Solitaire (play with two players)
5. How to use Dragon Speak, so I will not have to type

Any additional comments.

Even though technology is moving fast, please consider the older adult.

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