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Access and Use of E-Government Public Services Amongst Older Adults

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Abstract

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MA, University of Maryland University College, 2006

BS, Strayer University, 2004

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Lack of trust in technology, personal preference, and perceived inability to use online services are possible reasons for lagged adaptation to electronic government (e-government) among older adults in the United States. Although e-government policies promote, or require, that many public services be provided electronically, it is unclear whether older adults are able, or willing, to access such services. The purpose of this qualitative, exploratory study was to gain insight from older adults (e.g., "individuals who are 65 years or older") about their ability and willingness to access e-government services in a mid-Atlantic County. The framework for this research was Roger's diffusion of innovation theory. Data were collected via interviews with 21 older adults and then inductively coded and subjected to a thematic analysis procedure. Most participants reported using e-government services in some capacity, while the remaining 10% did not because of vision issues, the overabundance of information, personal dislike of technology, and/or the belief that e-government was not conducive for self-management. However, 28% of the participants who had used e-government preferred face-to-face interactions with people instead of online servicing while also recognizing the benefits of e-government services in terms of convenience. Moreover, participants suggested that e-government usage might improve if explanations of online terminology, examples of services, and instruction on primary online services, such as web services, are offered. The study may contribute to positive social change by providing information that federal, state, and local government officials can use to develop policies for e-government accessibility, types of services, and alternative options for the aging population.

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Dedication

For my grandmother Lillian Oliva King Goodman: This research is dedicated to our aging friends and family in hopes of making their years of hard work and contribution to society in years past meaningful. Grandma Cook, thank you.

Acknowledgments

J.C., nothing is impossible with you. Dr. Monique (Mo), thank you for introducing me to Dr. Demeter; there is no way that I could have accomplished this without her. Thank you to my husband and children, for being so patient, staying up late, and offering advice. To my many friends who have read and critiqued my study, thank you for your suggestions and guidance. For our older generation, you are the cornerstone.

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Chapter 1: Introduction to the Study

Introduction

The e-government Act of 2002 was enacted to provide all U.S. citizens with improved access to government services by using information technology (Almarabeh & Abu Ali, 2010; Molnar, 2015; Office of Management and Budget, 2016). In 2013, Stafford County Government in Virginia implemented e-government; this was done in partnership with the VA Department of Utilities and the Commissioner of Revenue through the development of an online portal for account management for utilities, personal property taxes, and real estate taxes (Stafford County Government, 2016). Since its development, the use of the online portal has seen substantial growth, with a 300% increase in 2015 (Stafford County Government, 2016).

The benefits to using e-government are that it provides a decrease in bill service charges to customers and 24/7 access to government accounts and contacts (Carter & Belanger, 2005). Additional benefits to the county government consist of reduced overhead costs, fewer customer calls, and increased savings through deploying automation (Stafford County Government, 2016). Prior to implementing online services, the Stafford County government reported manually processing more than 2,000 bills per day in addition to processing a significant amount of financial transactions, which decreased service efficiency (Stafford County Government, 2016). The benefits of electronic processing provide increase efficiency and caliber transactions (Petrides et al., 2017). Although the benefits of using e-government include savings of both time and

money, some of the population have challenges in using e-government services (Gupta, Singh, & Bhaskar, 2016). This is particularly true for the older adult population, who often have trouble navigating e-government and other online services (Davey, Parker, & Lukaitis, 2011).

Studies conducted in 2017 showed that more than 70% of Americans surveyed responded that they were satisfied with e-government (Statista, 2017). In 2016, Stafford County's population was 144,361, and at least 10% of that population consisted of older adults aged 65 and older (U.S. Census Bureau, 2016). Considering that many older adults are not as technologically literate as other younger demographics, and often struggle to navigate and understand online services, it is likely that this older adults within Stafford County, VA, may be part of the population who are not satisfied with e-government (Friemel, 2014; Satista, 2017). Researchers have noted that the older adult's citizen population is slower to adopt e-government (Bloom et al., 2015; Gupta et al., 2016; Rahmawati, Muktiyo, Nurhardjadmo, & Suharto, 2017). This slow adoption is often due to older adult citizens preferring more traditional forms of government-related practices such as paying their bills in person at a bank or using a telephone rather than e-mail to contact officials (Peral-Peral, Arenas-Gaitan, & Villarejo-Ramos, 2015).

According to these researchers, older citizens also tend to be less confident when using technology such as computers and cellphones; older adults also have expressed difficulty specifically in understanding how to work in virtual environments (Molnar et al., 2017; Peral-Peral et al., 2015). The changes in technology environments promoted by

e-government can further exclude older adults, often causing them to feel frustrated with technological changes (Aly & Munteanu, 2016; Molnar, 2015; Yusif, Soar, & Hafeez-Baig, 2016). In this study, I sought to explore the experiences of older adults in their use and willingness to adopt e-government. In particular, I focused on older adults' ability to use e-government, the accessibility of e-government, and the factors determining older adults' decisions about using electronic services.

In this study, I sought to explore policy diffusion in addition to the experiences of older adults in their use and willingness to access e-government. I used Roger's (1962), LaMorte (2016), and Zhang, Yu, & Spil (2015) interpretation of the diffusion of innovation (DOI) theory to understand and interpret the participants' adoption of e-government over the use of traditional public service offerings. This study found that 51% of participants have not adopted e-government for reasons including lack of trust, lack of confidence, health issues, and unawareness. Participants reported a preference for using face to face services over online services.

Background

Technological innovations (e.g., online services, electronic health records, electronic mail, etc.) often introduce unanticipated public problems that were not addressed initially in public policies but require subsequent government interventions (Lee, 2017). According to researchers, federal legislation for cybersecurity was initially based on criminal activity, as indicated by the development of the Computer Fraud and

Abuse Act of 1986 (Lee, 2017). Policies for consumer protection against cybersecurity events did not surface until the early 2000s when consumers faced cybersecurity issues around privacy and data security. Consequently, these events led policy makers to develop additional policies, constructed as consumer law notices, to protect against data breaches (Lee, 2017). Although some cybersecurity policies are designed for the protection of consumers against computer crimes, they do not protect any specific groups such as older adults from mandates to use e-government. Researchers have noted that older adults who have witnessed slow and sometimes reactive rather than proactive attempts to improve technology-based services and programs tend to view new innovations with suspicion (Carter & Belanger, 2005; Lee, 2017). Moreover, older adults have expressed concerns about their lack of trust and confidence when using online services to a greater degree than younger demographic groups (Dwivedi et al., 2017; Gill & Crane, 2017).

Former Vice President Al Gore and the National Partnership for Reinventing Government developed a program known as Access America in 1997 (Wood & Jenkins, 2001). This program brought government programs into the 21st century using technology and the Internet (Kamarck, 2013). Gore and the organization aimed to improve access to government programs while reducing time spent waiting for customer service agents (Wood & Jenkins, 2001). In an international study conducted by Davey et al. (2011) on individuals' use of and satisfaction with e-government, the researchers reported that an estimated one third of the study population used a form of electronic

medium to connect with the government, while more than a quarter of people preferred the traditional methods of in-person interaction or telephone communication (Davey et al., 2011). However, the U.S. government's focus on inclusion of citizens led to the development of websites aimed at older adults, students, individuals with disabilities, and workers (Molnar, 2015; Lee, 2017). Access America staff reached out to older adults using a website that gave access to multiple agencies in one place (Kamarck, 2013). A policy created by former President Clinton and enacted on December 17, 1999, also included a framework in which government services were conceptualized as ensuring privacy and security, automation, and innovative technological capabilities (Frank, 2000; Kamarck, 2013).

More recently, federal lawmakers have worked to improve technological advancements and security through the development of the Modernizing Government Technology Act of (2017), which allows government agencies to upgrade outdated technology, improve efficiency and effectiveness, enhance security, and reduce costs, among other capabilities. Technological advancements can be used in many ways to enhance quality and efficiencies, making life easier for aging adults (Federal Register, 2009). For many years, however, technological innovations for example, artificial intelligent (AI) devices designed to record habits, have entered economies without a consideration of public policy on the part of their developers, thus creating social issues of division (Lee, 2017).

The paradigm shift to policy development in this area requires coordination between the public and private sectors. Researchers from the Brookings Institute argue that lawmakers' involvement in the development of public policy in support of older adults' access to technology is critical (Lee, 2017). Older adults are an effective demographic group when considering modernizing the effects of technological policies (Peine et al., 2014). Public policy advocates of the National Council on Aging are concerned that federal legislation may reduce public programs for older adults (NCOA, 2018). Public policies have a strong influence on the success or failure of public programs; therefore, the American Society on Aging and the NCOA are focusing on lawmakers who are destabilizing these policies and programs (NCOA, 2018; Taylor, Pilkington, Feist, Dal Grande, & Hugo, 2014). According to researchers, public policies and mandates are generally outdated in the United States (Herrington-Myer & Daniel, 2016). Current or policies under development that are not amended to support modern advancements may impact public services and how they are offered in support of older adults (Atkinson & Marlier, 2010; Kneale, 2012; Novek, et al., 2013; Taylor et al., 2014). Public policy concerns are not limited to U.S. advocates and lawmakers; European countries and the United Nations recognize population aging as a social problem. European Union policy makers are working to redefine policy initiatives and address population aging and the socioeconomic factors that affect the well-being of older adults (Atkinson & Marlier, 2010; Kneale, 2012; Myck & Oczkowska, 2015; Vrooman & Hoff, 2012).

Increasing budget cuts have prompted many U.S. government agencies to save money by reducing costs (Congressional Budget Office, 2010; NCOG, 2018). Such cost reductions have led to limited or modified services, with agencies reducing their administrative and operating costs through automation of public services (Kernaghan, 2015). Online and technologically-assisted operations reduce costs through the reduction of manual processing and streamlining of systems (Farrell & Godman, 2013; Neely, 2014). The cost of measuring automation savings produced by e-government over the past 15 years is an immeasurable difficult process (Newcombe, 2014; Sander, 2014). However, studies show that automation of services is projected to save approximately a trillion dollars over 5 years (Farrell & Goodman, 2013).

It is likely, therefore, that government spending can significantly decrease over time due to e-government implementation. Yet, researchers have found that the use of online services has become a major challenge for older generations who are not using the Internet and computers on a regular basis to conduct business (Farrell & Goodman, 2013; Molnar et al., 2017). Although internet and computer usage has increased, research shows that the older generation is still lagging behind other segments of the U.S. population in technology use. A finding of one study was that older adults between the ages of 65 and 80 had less access to information communications technology and electronic services than younger generations (Mordini et al., 2009). The Pew Research Center reported that older and less affluent adults have significant challenges with technology (Smith, 2014). Other researchers reported that some older adults found technology difficult and complex

to use and were discouraged by a lack of human interaction (Greenwood, Perrin, & Duggan, 2016; Van Volkom, Stapley, & Amaturo, 2014). As these findings show, the government's intentions are to make services more accessible and efficient for the public, many of these services remain inaccessible to older adults.

Problem Statement

A lack of trust in technology, preference, and a feeling of inability to use online services are possible reasons for lagged adaptation to e-government among older adults. However, researchers have yet to explore the experiences among older adults who have accessed an e-government website or attempted to use the services available (Bloom et al., 2015; Gupta et al., 2016; Rahmawati et al., 2017). The general problem is that although e-government services save taxpayers money (Petrides et al., 2017), the policies underpinning public service delivery processes are made without an understanding that a large part of the population may not be willing or able to use these services. Research found that older adults are unable to use e-government due to lack of skills or awareness (Knudsen & Siren, 2015; Damnee et al., 2015). The specific research problem is that although e-government policies promote or require many public services to be provided electronically, it is unclear whether older adults are able or willing to access services in this manner. Government policies are limited in consideration of public opinion as they pertain to modernizing government services and offerings through e-government. Furthermore, policymakers have not provisioned protections from technological advancements for vulnerable populations, specifically older adult citizens.

Purpose of the Study

The purpose of this qualitative, exploratory study was to gain insight from older adults as to their ability and willingness to use e-government services. I explored the usage of the e-government website by older adults in Stafford County, VA, and how older adults use this information technology, if at all. One-on-one interviews allowed for such an exploration. Insight gleaned from the data collected may help policy makers to improve policies governing the delivery and accessibility of these services to the older adult population.

Research Questions

This research pertained to the use of e-government among older adults aged 65 and older in Stafford County, VA. The overall research question was, how do older adults aged 65 and older in Stafford County, VA, access and use e-government? In addition to this overarching research question, I sought to answer three sub research questions. The sub research questions were

SubRQ1: What e-government public services are older adults using in Stafford County, VA?

SubRQ2: What reasons are older adults self-reporting for their decisions to use or not use e-government services in Stafford County, VA?

SubRQ3: What suggestions do older adults have for how Stafford County, VA, can improve e-government services for use among older adults?

Theoretical Framework

I use Roger's (1962) diffusion of innovation (DOI) theory as the study's theoretical framework. The DOI theory is a social science theory used in many areas of research to understand how people convert to accepting and endorsing innovations during a period (LaMorte, 2016; Zhang, Yu, & Spil, 2015). LaMorte (2016) found that diffusion is accomplished when a new idea has been contemplated and accepted by a social system. An innovation is defined as ideas, changes, processes, or technological advancements that are interpreted in a particular way by a specific population or society (Zhang et al., 2015). Diffusion is the occurrence of steps taken to market an innovation to members of the social community during a period of time (Zhang et al., 2015). A social system involves interrelationships between populations or groups working together as a unit to solve concerns to "accomplish a common goal" (Zhang et al., 2015, p. 5).

This study expanded Roger (1962), LaMorte (2017), and Zhang's (2015) interpretation of the DOI framework to support the findings on older adults' access and use of e-government services. According to LaMorte (2016), the five factors of innovation adoption are relative advantage, compatibility, complexity, trialability, and observability. However, Zhang et al., (2015) stated that innovation success depends on communication channels, attributes of the innovation, characteristics of the adopters, and the social system. The DOI theory provided a framework for examining what older adults require for adopting the use of e-government. The DOI framework was also used to

understand policy diffusion. It was important to recognize how innovations of e-government were adopted and communicated by the Stafford County government.

Nature of the Study

This study was qualitative, and it included an in-depth examination of e-government use among older adults. Qualitative analysis allowed for the exploration of the social phenomena that bring forth meaningful experiences of older adults systematically. Qualitative researchers seek to understand the experiences and interpretation of the environment, events, and processes of participants (McGuirk & O'Neill, 2016; Yin, 2014). I examined the use of e-government websites by older adults located in Stafford County, VA, and how this population uses this information technology, if at all. Stafford is governed by the city of Fredericksburg. I chose to collect data in Stafford County because the older adults make up over 10% of the population (Stafford County Government, 2016). Additionally, this area was convenient because I live in the region.

The findings of this study may have implications for Stafford and for other counties in the United States with large older adult populations. e-government provides many services in this area, including from the Internal Revenue Service, Department of Motor Vehicles, and the Social Security Administration. Participant interviews consisted of questions on how older adults view and use e-government services.

Definition of Terms

Electronic government (e-government): An electronic means to enable citizens and customers to gain access to government information and services using technology (National Institute of Science and Technology, 2017).

Information communications technology: Technologies used in network infrastructures, software, applications, and components that enable modern computing and allow people and business to communicate in the digital world (Rouse, 2017).

Older adults: In the United States, older adults are citizens aged 65 years and older (Social Security Administration, 2016). This study pertains to older adults age 65 and older who have retired and are living independently.

Assumptions

There were several assumptions associated with this study. First, I assumed that participants would want to volunteer for this study. Second, there was an assumption that older adults have opinions regarding the use of e-government services versus human interaction. Third, I assumed that participants who volunteered would complete the survey in its entirety without interruption. The fourth assumption was that the minimum number of participants required for analysis would be available for the study. Last, I assumed that e-government services were available to all older adults in Stafford County.

Scope and Delimitations

The scope of this study pertained to older adults age 65 and older, retired from full time employment, living independently in their own homes or in a senior living

community. The scope also extended to participants who have access to e-government services online, who can read and write English, and living within Stafford County, VA. The exclusion of populations such as younger demographics or those with no access to online services was because their criteria are out of scope for this research. Furthermore, the younger population does not share the same experiences as the older populations, specifically older adults. The scope of this study extended to the older adult population's experience, use, and willingness to adopt Stafford County's e-government services. Other states and countries were not included in this research because the researcher did not have sufficient access to those resources or participants. However, future researchers may wish to study younger populations and their response to e-governments in other states or countries.

Limitations

Researcher bias included familiarity with technology, which may have swayed participants' thinking and perceptions of e-government technology because of the researcher's background. Furthermore, participation bias may have excluded some participants from volunteering based on certain traits, which would affect the study's outcome. Questionnaire font sizes may have been inappropriate for visually impaired participants and may have limited some participants, which is why the font for the questionnaires was enlarged. Furthermore, the findings of the study may not be widely generalizable because of the small sample size.

Significance

By providing information regarding the accessibility and practices of older adults in using e-government services, insight may be established that can lead to the development of policies regarding e-government accessibility, types of services, and alternative options for the aging population. Older adults are a significant part of the U.S. population, and many depend on government programs and services (Rahmawati et al., 2017; Statista, 2017). Solutions such as e-government are intended to relieve disparities by saving citizens time and money (Office of Management and Budget, 2016; Stafford County Government, 2015). Thus, it is important to understand the importance of e-government for older adults as well as how policies could change to make the use of this service easier and more accessible for this aging population.

Summary

As technology becomes more prevalent in society, e-government services are improving access to public services. The research problem is that although e-government policies require public services to be provided electronically, it is unclear whether older adults are able or willing to access services in this manner. The purpose of this qualitative, exploratory study was to gain insight from older adults as to their ability and willingness regarding accessibility and use of e-government services. Specifically, I explored the e-government public services in Stafford County, VA, and how older adults use this information technology, if at all. Lastly, through this research, the increased understanding of older adults and their ability and willingness regarding accessibility and

use of e-government services adds to the body of literature and provides policymakers with information in support of social program strategies for future public service offerings. Chapter 2 provides a thorough review of the appropriate and available literature regarding older adults and e-government adoption.

Chapter 2: Literature Review

Introduction

There benefits of using e-government is remote access to online records and the ability to print forms on demand. Policies supporting implementation of e-government may be discouraging or excluding older adults from using services as intended (Aly & Munteanu, 2016; Molnár et al., 2017; Taylor et al., 2014). This is because older adults often report lower levels of confidence and user competence with online technologies (Choudrie & Alfalah, 2016; Gupta et al., 2016). Many of the participants in this study were unaware of communications from Stafford County on policies about using e-government in place of traditional public service offerings. Studies found that older adult's prefer in-person or more traditional interaction with governmental services and officials (such as through telephone conversations), or may be unwilling to engage with e-government due to an increased reliance on others' assistance with technology to obtain services that they could previously gain independently (Dwivedi et al., 2017; Gill & Crane, 2017; Peral-Peral et al., 2015; Wu, Damnée, Kerhervé, Ware, & Rigaud, 2015). The problem focused on in this study is that although e-government policies promote or require many public services to be provided electronically, such policies may be excluding rather than assisting a large portion of the population requiring such services (Taylor et al., 2014).

Policy diffusion was unconfirmed by this study. This study could not determine how Stafford County disseminated policies to citizens on transitioning from traditional

public service offerings to e-government. According to research, policies on e-government did not appear to be sufficiently communicated to citizens by government entities at the federal, state, or local levels. LaMorte (2016) found that diffusion is accomplished when a new idea has been contemplated and accepted by a social system. Participants noted that older adults should be involved in policy decisions that impact their well-being. While not part of this study, these actions have wider implications in other areas for other populations.

Currently, there is a paucity of research related to older adults and their ability to use and willingness to adopt e-government (Boban et al., 2014; Gonzalez-Zapata & Heeks, 2015). Thus, it is unclear whether older adults are able or willing to access services in this manner. I aimed to fill this research gap in the current study. Additionally, researchers have yet to fully explore the experiences among those older adults who have previously accessed e-government websites or who have attempted to use the online government services currently available (Bloom et al., 2015; Gupta et al., 2016; Molnár et al., 2017; Rahmawati et al., 2017). To address this gap, I sought to gain insight from older adults regarding their experiences regarding accessiblity and willingness to use e-government services.

In this chapter, I discuss previous research on older adults, technology, and e-government. The chapter begins with an overview of my literature search startegy and the study's theoretical framework. The literature review includes a discussion of past and current research related to e-government services and older adults' adoption of this

service delivery, as well as any gaps still evident within this field of research. The reviewed research also provides insight on older adults and their use of e-government services, and how current policies support e-government services while simultaneously potentially excluding the older demographic from accessing such services. The chapter also highlights how more research is needed on the experiences of older adults who have accessed e-government services (Hrast, Hlebec, & Kavcic, 2012). Such additional research may aid in the development of policies to improve the use and adoption of electronic services by older adults and provide them with improved access to services offered via e-government (Chen, 2003; Lee, 2017; Molnar, 2015). The chapter ends with a summary of the main points of the literature review.

Literature Search Strategy

Multiple search strategies were used to attain literature on this topic. The results varied depending on which search engine and key terms were entered. Specific words such as *Electronic Government (e-government) and Older adults* resulted in 4,190 articles found using Google. General searches using Thoreau and entering the title *e-government services* yielded minimal results. The use of Google Scholar provided 2,360 documents using the keywords *e-government Policy on Older adults*. However, not all of the findings were relevant to this study's criteria; therefore, the search was modified using specific terms. Comprehensive words such as *policy*, *older adult citizen*, *e-government*, and *technology* yielded the best results. Moreover, supplementary peer-reviewed articles were obtained from Walden University databases, ProQuest, and Sage

journals. Many of the peer-reviewed articles were found using custom date ranges, with the majority (79%) of sources used in the literature review being published between 2014 and 2018.

Theoretical Framework

As noted in Chapter 1, the framework for this research was based on Roger's (1962) diffusion of innovation theory. The framework is a social science theory that is used in many areas of research to understand how people of specific demographics or class convert to accept and endorse innovations over periods of time (LaMorte, 2016; Zhang et al., 2015). Roger asserted that in order for diffusion to take place and for society, as a whole, to accept innovation, the process of diffusion would need to take time, and be accepted by varying groups or "adopters" at different times. In essence, Roger established five categories of adopters (i.e., individuals or groups who accepted an innovation): (a) innovators, (b) early adaptors, (c) early majority, (d) late majority, and (e) laggards.

Innovators are the first to try or even create an innovation, while early adopters are those individuals who try an innovation and advocate for its acceptance (Roger's, 1962). According to Roger's research, early adopters are members of the general public who readily adopt an innovation shortly after they are introduced to it (Roger's, 1962). Late adopters tend to be more skeptical of an innovation and require proof of use or acceptance from peers or societal groups over a period of time before transitioning to or adopting the innovation (Roger's, 1962). Finally, laggards are those individuals within a

society who are the least likely to adopt and most skeptical about adopting an innovation (Roger's, 1962). Their disinclination may be due to their conservative nature; their natural resistance to and skepticism of change; or not having the necessary skills, knowledge, or resources to assist them in adopting an innovation (Roger's, 1962; Van Volkom et al., 2014). Using the DOI theory as the theoretical framework was used to better understanding why older adults might lag in technology adoption.

I also found the DOI theory to be helpful in better understanding what diffusion and innovation describe. LaMorte (2016) stated that diffusion is accomplished when a new idea has been considered and accepted by a social system. An innovation is defined as ideas, changes, processes, or technological advancements that are interpreted by a specific population or society (Zhang et al., 2015). Two of 21 participants reported being unaware of e-government. Another 10% of the participants did not trust, lacked confidence in, and had confusion when using technology. Another 29% simply preferred face to face communication. Specifically, 10% of the participants stated they were unable to use solutions such as e-government due to health issues. Diffusion is the occurrence of steps taken to market an innovation to members of the social community over a period of time (Zhang et al., 2015). A social system, as described by Zhang et al. (2015), is the interrelationship between populations and groups as they work together to solve problems or meet common objectives. Within this current study, the aim was to find ways for older adults to be more fully integrated into a social system in which technology is widely used, through creating means for their improved adoption and acceptance of e-

government. In other words, I sought to understand how innovation such as e-government is diffused to the lagging older adult population and to present avenues for mitigating such lagging and improve older adults' use, experience, and adoption of this particular innovation.

By using the DOI theory, I was also able to classify older participants not only in relation to their adapter categories but also in relation to the other factors required to improve innovation diffusion and adoption. According to LaMorte (2016), the five factors of innovation adoption are (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability. The more potential users have to engage with an innovation, the more likely the innovation is to be compatible with their lives; in addition, the easier it is for potential adopters to understand and navigate an innovation's complexities, the more likely they will be to accept and adopt the innovation (LaMorte, 2016). Similarly, if potential adopters can try out an innovation, or observe how it plays out in others' lives or society in general, they are also more likely to incorporate the innovation into their own practices (LaMorte, 2016).

In contrast to some researchers, Zhang et al., (2015) observed that innovation success depends on communication channels, attributes of the innovation, characteristics of the adopters, and the social system. In this case, if potential adopters have clear information and access to feedback channels regarding an innovation, they are more likely to adopt an innovation (Zhang et al., 2015). The innovation itself, its "user-friendliness" and how it might benefit adopters, can also play a role in how likely

individuals will be to adopt the innovation (Zhang et al., 2015). How the innovation functions within the larger social system, and how willing others are to adopt the innovation, can also play a role, especially for adopters who fall into the late majority or laggards DOI theory categories (Roger's, 1962; Zhang et al., 2015).

The use of the DOI theory as a framework for this study has also been validated through its use in other e-government and public-sector studies (Carter & Bélanger, 2005; De Vries, Bekkers, & Tummers, 2015). This theory has been tested by numerous studies utilizing the theory across a wide spectrum of fields, including nursing and the social sciences (Dearing, 2009; Doyle, Garrett, & Currie, 2014). Researchers have also tested this theory in laboratory and critical analysis studies, where its validity was further confirmed (Dearing, 2009; Nan, Zmud, & Yetgin, 2014). The DOI theory for this research provided a valuable framework from which to study and understand aspects related to older adults' experiences with, use of, and willingness to adopt e-government.

Literature Review

A comprehensive review of literature was undertaken to develop a thorough understanding of the study's parameters. Information was then organized into thematic concepts. These concepts include aging recipients of e-government services, policy implications, barriers associated with aging and e-government adoption, transformation to e-government, measuring e-government performance from the citizen perspective, and technology adoption. Each of these concepts and the related information are included in the following subsections.

Aging Recipients of e-government Services

As users of public services, older adults are generally not considered when introducing new technologies (Rodrigues, Sarabdeen & Balasubramanian, 2016). Such lack of consideration for a large part of the service-receiving population can result in inadequate service delivery to this demographic, and/or potentially exclude older adults from necessary services (Friemel, 2014; Kernaghan, 2015). This, in turn, can have a negative impact on both social and governmental operations, and lead to additional costs for government and older adult citizens in order to bridge the technology-service access gap (Wu et al., 2015; Yusif et al., 2016). Older adult citizens may also begin losing their sense of independence or have to deal with added stress and frustration when interacting with or seeking governmental services, due to their inability to access, need for additional assistance, or failure of government to meet older adults' needs through alternative-to-technology strategies (Peral-Peral et al., 2015; Aly & Munteanu, 2016).

One study found that citizen feedback was essential in successfully integrating technology into public service (Chen, 2010). However, there currently seems to be little U.S.-related research around, or actual feedback received from, older adults and their use, adoption, and experiences of e-government (Carter, Weerakkody, Phillips, & Dwivedi 2016; Choudrie & Alfalah, 2016; Gupta et al., 2016). Furthermore, the modernization to electronic services promoted by e-government is contentious as the government on all levels improves technology and services (Connolly, 2017; NCOA, 2018). Thus, while digitization of governmental processes may work to reduce costs, it can also lead to

additional costs required to provide proper solutions for demographics such as older adults that are necessary to aid their access to new technology (Connolly, 2017; NCOA, 2018; Taylor et al., 2014; U.S. Congress, 2017).

The concern for older adults is that the e-government trend holds inherent assumptions that citizens, in general, have the necessary accessibility and understanding of technology to utilize e-government successfully (Kernaghan, 2015; Levy et al., 2014). However, research has revealed that older adults often do not have the necessary skills, knowledge, or technological accessibility to keep up with ever-increasing trends toward digitization (Dwivedi et al., 2017; Molnar, 2015; Winstead et al., 2014). Stereotypes associated with aging commonly label older adults as outdated or slow adopters (Kulik, Ryan, Harper, & George 2014). Yet, little research into or attempts at aiding older adults to gain the necessary skills, knowledge, and resources to improve their adaptation of technology seems to have taken place (Kamarck, 2013; Winstead et al., 2014; Wood & Jenkins, 2001). The current study may, in part, work to fill this particular research gap.

It should be noted that the phenomenon of aging has begun attracting more attention worldwide in recent years, as policymakers and researchers work together to address economic resource concerns in relation to an aging populace (Foster & Walker, 2014; Kulik et al., 2014). American older adults, also known as Baby Boomers, born between 1946 and 1964, began retiring in 2011 at age 65 (Bennett-Kapusniak, 2013). This movement toward retirement will continue into the year 2060, with an ultimate retired population exceeding 98 million people (Mather, Jacobsen, & Pollard, 2015).

Many of the retired population will require public services (Mather et al., 2015). Such a large retired population is of even greater concern when measured against the smaller numbers of generational cohorts within the Generation X and Millennial demographics, who will need to pick up the workload and provide the financial support for this retired population and the governmental services they require (Pew Research Center, 2010; Sonnega et al., 2014). It is, therefore, important to assist older adults in maintaining their independence and ability to access government services for and by themselves for as long as possible (Sonnega et al., 2014; Taylor et al., 2014).

There are also additional inequalities related to aging, such as early retirement and social decline (Katz & Calasanti, 2014), and community complexity (Shen, Parnell, Ordovas, & Lai, 2013). Such inequalities can also lead to a larger portion of the population growing older which can extend into society post-retirement (Foster & Walker, 2014; (Boban et al., 2014). In other words, citizens may well grow older and stay alive for longer after retirement, which would increase the need and length of government services to these citizens (Zajacova, Mortez, & Herd, 2014). There also comes a point where the older adults may be unable to perform day to day activities, or participate in physically activities alone (CDC, 2016; Sonnega et al., 2014). They will, therefore, require additional assistance and services, which could add pressure to government services and programs related to service delivery (Social Security Administration, 2016; Zajacova et al., 2014). Considering that the older adult population is living longer with more dependence on public resources and services, researchers have argued that the

social wellbeing of older adults should be treated as equally important to the concerns of other demographics (Price, 2015; Winstead, Yost, Cotton, Berkowsky, & Anderson, 2014). Older adult concerns should also be considered when changes in public services (such as moving toward digitized services) are to occur (Chen, 2010).

Due to the potential pressure and financial implications of inadequately providing services to an increasingly aging population, it is important that government, at the local and federal levels, find ways of addressing older adults' e-government concerns. Policy and lawmakers would also do well to consider the kinds of resources and assistance older citizens might require in order to mitigate potential issues around and increase their adoption and use of e-government, so as to maintain e-government's propensity toward cost-saving (Gupta et al., 2016; Neely, 2014). However, such considerations and policy adaptations cannot occur without understanding older adults' experience, use, and willingness to adopt e-government. This study, therefore, assists policymakers in this regard by highlighting older adults' experiences with e-government and their suggestions for improving and meeting their needs in relation to their increased use and adoption thereof.

Policy Implications of e-government Services

Policy advocates are concerned that government policies have not been adequately put in place to support older adults in their move toward e-government (Blancato, 2017; Chen, 2010). Legislation that does not address privacy policies and personal information when using e-government services also exclude older adults who

tend to distrust technology and report greater levels of privacy and security concerns related to online activity (Choudrie & Alfalah, 2016; Gupta et al., 2016; Rahmawati et al., 2017). Choudrie and Alfalah (2016) developed and distributed online and hard copy questionnaires to older adults as a means of studying current policy. The authors found that current policies do not make allowances for the unequal distribution of adoption among differing demographics (Choudrie & Alfalah, 2016). That is, while the government has a role in ensuring that older adults are able to participate in using the benefits of e-government, there are not sufficient policies in place to ensure such use (Choudrie & Alfalah, 2016). The Choudrie and Alfalah study (2016) was conducted in Saudi Arabia, so similar future research is still needed for the U.S. context.

Researchers believe that the push of technology influenced by e-government has also potentially negatively impacted the health and wellbeing of older citizens by causing, albeit likely unintentionally, social exclusion (Bengtson & DeLiema, 2016; Stewart et al., 2013; Boban et al., 2014). Social exclusion relates to any population that cannot, for whatever reason, be it economically, educationally, or otherwise, partake in the general activities within a society (Helbec et al., 2012). Social exclusion can often lead to increased loneliness, which is often associated with increased health concerns (Price, 2015). In the case of older adults and e-government, social exclusion can occur due to older citizens failing to “keep up” with current technological trends (Blažun, Saranoto, & Rissanen, 2012; Boban et al., 2014). Thus, not only are older adults excluded from technological use but from the associated social interactions, thereby causing

isolation which may lead to additional health issues (Peral-Peral et al., 2015; Waycott et al., 2015).

Although federal policymakers have developed programs such as the National Telecommunications and Information Administrations Broadband Technology Opportunities Program (Tsai, Shillar, Cotten, Winstead, & Yost, 2015) for advancing technology in rural areas, these policies do not do much for protecting older adults against pressures to use e-services (Kernaghan, 2015). Social policies that address certain aspects of economic factors also exist in relation to e-government but fail to connect social demands with the digital movement (Mervyn, Simon, & Allen, 2014). Such failure to bridge stability and transparency for the older generation has led to many older adults failing to benefit from or to incorporate e-government into their government-related interactions (Biggs et al., 2013). Existing policies are also not currently represented in all communities (Novi-Corti, Candamio, & Alvarez, 2014). Novi-Corti et al. (2014) found there to be digital disparities between individuals living in cities and rural areas in Spain. It is likely that similar disparities exist in the U.S. However, more research is still needed to substantiate this assumption. What is clear from the research is that the trend toward e-government and increased technological use, combined with older adults' lagging behind this trend, may hold significant risks, not only to the elderly's ability to use government services, but also with regard to their general health and wellbeing (Waycott et al., 2015).

Thus, while the advancement of technology in government space is important for economic growth, policymakers also need to take other factors into account before and

during technological upgrades to governmental services, systems, and processes (Carter, & Bélanger, 2005; Khanh, 2014; Zajacova et al., 2014). Policymakers also need to take into consideration the needs and ability of differing demographics, and make allowances for such differences (Rose et al., 2015). For example, younger demographics tend to be more capable of navigating and accepting of new and online technology (Carter et al., 2016; Vroman, Arthanat, & Lysack, 2015). This means that younger citizens would be more welcoming of e-government processes, would be more likely to make use of such services, and would be better able to properly benefit from such an approach to government interaction than older cohorts (Greenwood et al., 2016; Gupta et al., 2016). Conversely, older citizens often struggle to navigate new technology, and may be less likely, able, or willing to adapt to and adopt governmental technology changes (Friemel, 2014; Statista, 2017). This, in turn, could cause the elderly, who are often in more need of governmental services, to receive fewer governmental benefits and assistance (Carter & Bélanger, 2005; Kernaghan, 2015).

Yussif et al. (2016) suggested, based on a comprehensive review of the literature, that governments and policymakers make provisions for running parallel programs where older adults can still access governmental services through more traditional means, such as paying accounts in-person, or conducting business telephonically rather than online or via email. Choudrie and Alfalah (2016), and Vichitvanichphong, Talaei-Khoei, Kerr, and Ghapanchi (2014a) also suggested that older adults be provided with technological aides (usually younger officials, who can assist the elderly to use e-government by coming to

their homes) to improve e-government adoption. Another alternative was to offer community classes for how to work with e-government websites, as well as general technology skills development or improvement, so that the elderly can learn how to use e-government, and benefit from such services (Horrigan, 2016; Molnar, 2015; Thomas & Mor, 2013; Tsai et al., 2015). However, there is currently little research into the potential success or benefits of such alternatives. Also, under researched is how e-government policies impact (through improving or excluding) older adults' use, experience, and willingness to adopt the technology (Bloom et al., 2015; Gupta et al., 2016; Molnár et al., 2017; Rahmawati et al., 2017). Thus, the current suggested alternatives and policies would need to be studied in more depth to ascertain their value to older adults.

Policy makers should also be focused on the treatment, health, and wellbeing of older adults (Blancato, 2017). Due to older adults often reporting increased levels of stress when engaging with technology, it would make sense for policymakers to attempt to find ways of, or providing for, lowering older adults' stress when navigating e-government (Molnar, 2015; Yagil, Cohen, & Beer, 2016). Again, however, there is currently little research available to policymakers on how such stress can be lowered, or what older adults need in order to willingly and effectively engage in and utilize e-government (Bloom et al., 2015; Gupta et al., 2016; Molnár et al., 2017; Rahmawati et al., 2017). This study may, in part, be able to assist policymakers in this regard.

Barriers Associated with Aging and e-government Adoption

The aging adult community is one of the largest groups that is hesitant to use and lagging behind in the adoption of e-government (Choudrie & Alfalah, 2016). Research indicates that this group is slow to adopt newer technologies based on perceptions that technology is complex and difficult to navigate, feelings of inadequacy and lack of knowledge for how to operate technology, and mistrust of online security (Choudrie & Alfalah, 2016). Older citizens may also find it harder to accept changes in operations, instead feeling more comfortable with more traditional and, therefore, familiar, ways of interacting with and gaining services from the government (Meijer, 2015; Quan-Haase et al., 2016). Hesitation to adopt and adapt to new technology may negatively impact older adults, in that they may find it difficult to access, or be excluded from, government services (Friemel, 2014; Meijer, 2015). Older adults may also feel as if their independence is waning as they may require more and more help from others, as they fall further behind the technology trend, in order to gain or work within government services and processes (Aly & Munteanu, 2016; Peral-Peral et al., 2015). This, in turn, may lead to higher levels of frustration and a lower sense of wellbeing in this demographic (Molnar, 2015; Price, 2015).

Advocates for aging adults argued, however, that technology should provide a level of independence instead of division. In 1965, the Older Americans Act (Pub. L. 89-73, 79 Stat. 218, July 14, 1965 et al., Thomas (2013); NCOA, 2016) was created in support of older adult independence. Services rendered under this Act aid states and

communities in allocating monies for training, benefits, and other supporting services (Thomas & Mor, 2013). Yet, there seems to be disparities in how states actually make use of such monies; if, where, and how they aid older adults; or in other ways they provide opportunities for technology to aid rather than hinder older adult independence (Carter et al., 2016; Thomas & Mor, 2013). These disparities may be due, in part, to the Older Americans Act expiring in 2001, with no federal legislation taking its place until its reauthorizion in 2016 (NCOA, 2016). In other words, while there is again legislation providing for older citizens and their upliftment through technology and technology-related skills development, this legislation does not always seem to be enforced, has had to be reintroduced to mitigate problems arising from the Older Americans Act's 15-year absence, and does not make provisions for older adults when implementing new technology (NCOA, 2016). Government, therefore, needs to be more aware of legislative issues and shortfalls in relation to older citizens and technology, and find ways of addressing these. This is especially true for policies related to e-government and making online services easily accessible to the older population.

According to the National Council on Aging, older adults are also not prepared for retirement (NCOA, 2016). Millions of Americans do not have the financial means to support their long-term care, or to live comfortably in their retirement years (Pew Research Center, 2010; Social Security Administration, 2016; Taylor et al., 2014). Furthermore, older adults have been misled into thinking that public benefits, such as Medicare, are similar or equal to what they accessed during full-time employment

(NCOA, 2016). This misinformation has led to many older adults being unable to afford proper medical care or failing to benefit from those government medical services that are available to older citizens (Friemel, 2014; Mitchell, Bryson, Rauwolf, & Ingram, 2016). Older adults' struggles regarding governmental services and correct information regarding what is and is not included in such services are further compounded by most of the information being available online, with little provision for other avenues of information (Carter & Bélanger, 2005; Gustafson et al., 2015; Molnár et al., 2017). That is, older adults who cannot or do not know how to access government-related services or information online may be reliant on secondhand information, which may be inaccurate (Friemel, 2014; Mitchell, Bryson, Rauwolf, & Ingram, 2016). Such older adults may also not be aware of changes and policies, as they have few other avenues, such as through hardcopy newspapers, government publications, or posts in community centers or libraries, for gaining the proper information in these regards (Bennet- Kapusniak, 2013; Friemel, 2014).

Retirement

Historically, during the 1970s and 1980s the government motivated early retirement in response to social and political policies in efforts to revitalize the economy by opening up jobs to the younger generation (Taylor, 2014). Current law in the United States allow older adults to retire at the full retirement age of 65 (Social Security Administration, 2016). However, due to the changing economic climate, as well as the generally increasing age of the population (i.e., individuals are living longer than in the

past), the government is considering a policy change that will increase the age of retiring older adults to almost 70 in the upcoming years (Zajacova et al., 2014). Essentially, this tactic may stabilize the social security budget by having fewer people dependent on governmental services, but in turn hurt lower income workers by having jobs filled for longer, thereby limiting new employment opportunities (Congressional Budget Office, 2010). Considering that many within the elderly community may have taken early retirement in the past, as well as the current aforementioned lack of funds for many retirees, a vast number of older citizens are reliant on social security to make ends meet (Zajacova et al., 2014). Older adults may also have limited personal investments or pensions to sustain their financial needs, causing even more older adults to require governmental services and assistance, such as medical aid (Zajacova et al., 2014). The greater number of older adults in need of governmental services can place a strain on governmental service delivery, finances, and processes (Social Security Administration, 2016; Zajacova et al., 2014). Retirement planning, depending on what kind of lifestyle one plans to have after leaving the workforce, can be convoluted with many pros and cons (Szinovacz, Martin, & Davey, 2013). According to research, some older adults view the pros of retirement as less stress while being able to enjoy life after years of working. However, Hershey and Henkens (2013) argued that satisfaction in retirement was based on the circumstances in which a person retires. Moreover, Hershey et al. (2013) found that those who retired without restraints were happiest over those who retired abruptly. Retirement involves a lifestyle change for most older adults, such as relinquished social

roles, a decline in health, changes in relationship status through divorce or loss of a spouse, financial crisis, or altered residence. Social change-related studies have shown that the impact of losing social connections leads to health problems and withdrawn behaviors (Vroman, Arthanat, & Lysack, 2015). Health can have an adverse impact on social participation. Wellbeing is a common concern for many retirees because of unsuspected ailments and rising health cost (Notes, 2016). Degenerative diseases, earlier substance abuse, or the common effects of aging are often not included in retirement planning (Insler, 2014).

E-government could likely assist with managing such strain, and could lower related costs (Newcombe, 2014; Office of Management and Budget, 2016). However, older adults will still need to be able to access these services, and government departments, therefore, need to ensure that they do not end up excluding the very population requiring their services due to aforementioned older adults-technology constraints. This current study may shed light on how Government may achieve this balance.

The Federal Budget and Government Programs

It should also be noted that recent budget restraints have impacted many federal programs and state funding, such as the aforementioned expiration of the Older Americans Act in 2001, which disrupted services and impoverished dependent older adults (NCOA, 2016). Although Congress reauthorized the Act (signed into law on April 19, 2016) the absence of this 50-year program affected the ability of organizations and

governmental departments to administer benefits, and for older adults to receive them (U.S. Department of Health and Human Services, 2016). More research is needed to ascertain how the reintroduction of this Act might work to positively impact older adults' access to and technological upliftment around e-government services in the future.

The complications of aging are also not limited to health or financial crises for older adults. Apprehension around aging is often linked more to the effects, and health and social consequences thereof, than to the process itself (Katz & Calasanti, 2014; Shen et al., 2013). In other words, the more individuals age, and the more the population begins to live longer, the more governmental, social, and economic issues and concerns are likely to arise (Sonnega et al., 2014; Tsai et al., 2015). Psychological factors also become a concern, with older adults having to define successful aging and find meaning in retirement (Foster & Walker, 2014; Katz & Calasanti, 2014). In one study, researchers found that older adults who communicate with friends and have common routines can maintain better health as they age (Burnes et al., 2012). Research suggested that older adults who positively adjust to changes could also improve their quality of life (Tsai et al., 2015). Thus, providing older adults with opportunities to learn and engage with a changing world, such as in the case of navigating e-government, might assist older adults in living healthier and longer lives (Bengtson & DeLiema, 2016; Blažun et al., 2012; Horrigan, 2016). Intuitive adjustments such as managing modifications in technology or lifestyle might also work to improve older adults' outlook and quality of life (Winstead et al., 2014).

As noted in the previous *Policy Implications* section, aging adults often experience social exclusion that can be exacerbated through technological alienation, and which can cause a decline in the elderly's general health and wellbeing (Boban et al, 2014). Social exclusion takes on many definitions to explain the loss of the competitive edge in society (Centeno, 2013). In regard to the aging demographics, active social exclusion is a loss between the older adults and society after a social change has occurred, such as the removal of the older adults from the social work environment upon retirement (Myck & Oczkowska, 2015; Zajacova et al., 2014). When social exclusion extends to social isolation, it is possible for individuals, such as older adults, to develop illnesses associated with loneliness (Price, 2015; Waycott et al., 2015).

Social isolation, as defined by Price (2015), is the absence of a societal relationship. For both social exclusion or isolation, research notes loneliness as a key contribution associated with greater impermanence (Loxterkamp, 2014). Experiences of impermanence and loneliness can negatively impact the psychological wellbeing of the affected individual affected and can further manifest as physical ailments such as heart disease and dementia (Christiansen, Larsen, & Lasgaard, 2016; Valtorta, Kanaan, Gilbody, Ronzi, & Hanratty, 2016). Other factors contributing to social exclusion include individuals' level of capability for self-support, with older adults who are more reliant on the help of others often experiencing higher levels of social exclusion due to decreased independence (Vichitvanichphong et al., 2014). It is important, therefore, that the government's push toward e-government does not cause additional feelings of social

exclusion and isolation in the aging population, as such exclusion may negatively impact both the population's health and wellbeing, as well as place additional financial and social strains on government services that have to address the related health issues (Christiansen et al., 2016; Newcombe, 2014; Office of Management and Budget, 2016).

Gerontology research shows a correlation between age and social factors of transitioning older adults (Bengtson & DeLiema, 2016). Such research has indicated social consequences of aging that lead to exclusion (Bengtson & DeLiema, 2016). Aging alone is not the single cause of definitive problems associated with social exclusion. Rather, problems occur when aging is perceived as socially negative and uninvited, with a loss of individuality (Pitts, Fowler, Fisher, & Smith, 2014). As a countermeasure to such perceptions, various older adults support initiatives, such as the Assisted Living Federation of America (ALFA) (2016) provide needed support for older adults care and development of collective policies. Additional measures may be found in adapting e-government policies toward including and making allowances for older adults citizens so as to assist, rather than hinder, this population in gaining access to (and thereby taking part in the associated social interactions associated with) government services. However, there is currently little research available in this regard, particularly within the American context. This study may therefore, at least in part, shed light on how e-government policies might achieve this, thereby filling this noted research gap.

There is, however, some research related to European demographics, and the elderly's use and adoption of e-government services, such as Hrast et al.'s (2012) study

conducted in Eastern Europe. This study also focused on how governmental technology adoption and trends might aid or hinder older adults' social interactions and either cause or limit experiences of social exclusion and/or isolation (Hrast et al., 2012). Due to the increasing number of older adults retiring between 2011 and 2030 (Pew Research Center, 2010), representing the largest retiring population in America, and their consequent increased dependence on public services, it is important that similar studies as those conducted in Europe occur in the U.S. There is also a general lack of aging-related studies within the U.S., as noted in the CDC's report *The State of Aging and Health in America* (CDC, 2016). Thus, while this current study may work to fill some of the gaps found in the literature related to e-government and older adults, far more future research into various older adults-related issues regarding technology and other areas is also still needed.

Transformation to e-government

In 2009, the Obama Administration renewed the commitment of government transparency by encouraging public feedback (Federal Register, 2009). The administration believed "public participation and collaboration" (para 1, 2009) would reinforce democracy. Moreover, they believed that maintaining government accountability and providing the public with information on government activities would further improve government efficiency. President Obama argued that citizen collaboration in policy making through obtaining public feedback would identify innovative opportunities (Federal Register, 2009). One measure for increasing such

collaboration took the form of e-government (Farrell & Goodman, 2013; Sander, 2014). Through the employment of e-government solutions and technology, the government could provide citizens with direct access to governmental information, contact with officials, and easier and more streamlined access to governmental processes (Meijer, 2015; Newcombe, 2014; Statista, 2017).

Trends toward digitized governmental services and processes were also partially initiated as a cost-saving measure (Gupta et al., 2016; Neely, 2014; Taylor et al., 2014). Digital administration allows for smoother and more effective data management and processing, allowing faster service delivery (Farrell & Goodman, 2013; Neely, 2014). It also requires less man-power, which can reduce the need for salary and other employee-related costs (Farrell & Goodman, 2013; Neely, 2014). There is also potentially less chance for human error to occur during processing, which can further reduce governmental costs (Cordella & Tempini, 2015). Citizens can also experience cost reductions in that they no longer have to spend time and money on physical paperwork, leave their employment to conduct government-related activities, or pay fuel or public transport costs associated with physically going to government departments (Cordella & Tempini, 2015; Sander, 2014). In the long run, digitization can be a very cost-effective solution, especially as more citizens and departments adopt technological avenues (Gupta et al., 2016; Neely, 2014).

However, such modernization also comes with various challenges. For one, governmental budget cuts have caused the transition from traditional to e-government

processes to be slow and time consuming (Connolly, 2017). It has also required extensive spending on infrastructure upliftment, updating old government technological systems, and additional training for government officials having to work within the new technological structure (Connolly, 2017). Technological implementation is also often met with a trial-and-error period where system glitches need to be addressed (Bertot, Estevez, & Janowski, 2016; Janssen & Helbig, 2016). This may cause additional, rather than fewer, cases of increased man-hours; physical as opposed to digital interactions; and other issues that first need to be overcome (Bertot et al., 2016; Janssen & Helbig, 2016). The push by younger generations, in particular, for governmental digitization has also led to increased government spending to meet these increased digital demands in a timely manner and attempts to undo the backlog created by the aforementioned budget cuts and trial periods (Carter et al., 2016; Congressional Budget Office, 2010; Rose et al., 2015; Vroman et al., 2015).

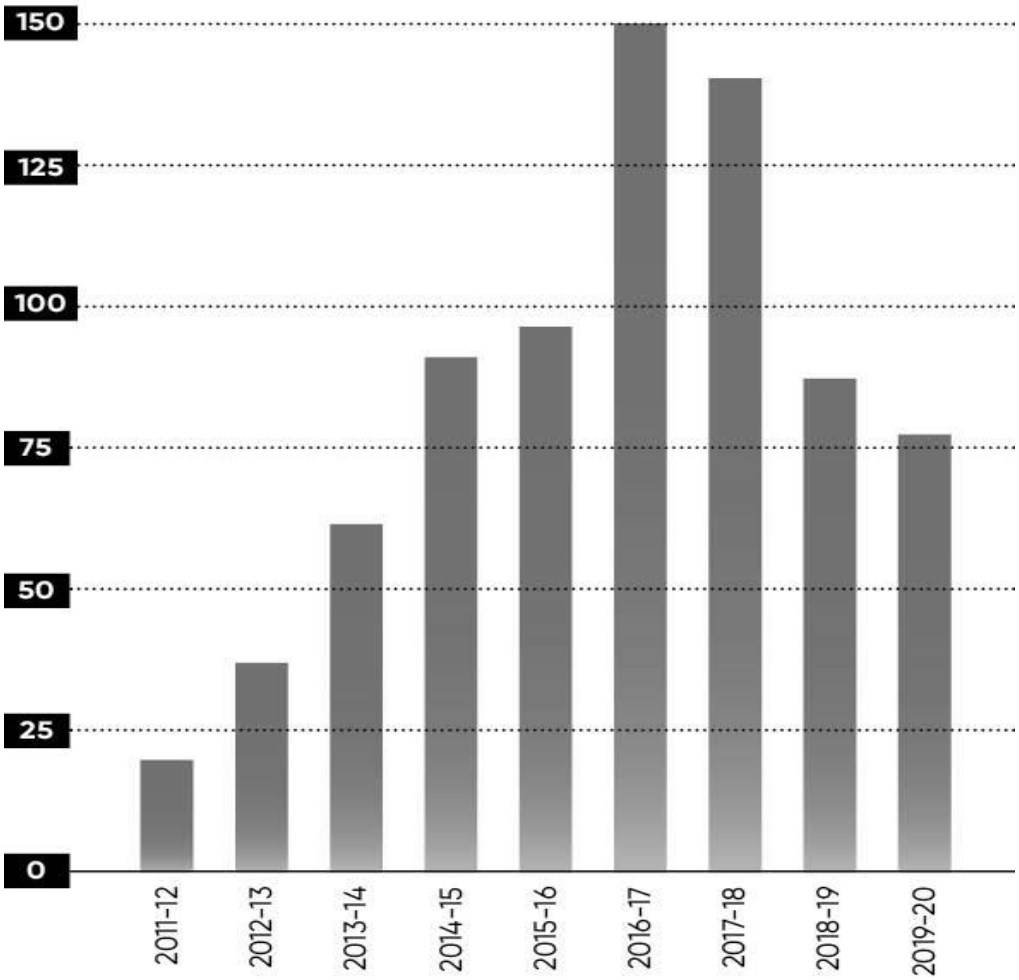
Internet and digital device use has increased tremendously as technology is proven to be efficient in communication and service delivery (Carter et al., 2016; Rouse, 2017). However, according to Connolly (2017), digital transformation is not solely related to technology. Rather, government and other organizations also need to account for how digital transformation might impact working relationships, customer expectations, and overall service delivery (Connolly, 2017). In the governmental context in particular, there are also other social factors, such as the need to uplift citizens and specific demographics, in other areas such education and economics, so that they, too,

may be able to participate in the technological reforms (Bloom et al., 2015; Centeno, 2013; Kamarck, 2013). All this can lead to additional short-term expenses for which the government needs to account. The U.S. is not alone in its need to increase spending so as to meet digital transformation needs. The European National Audit Office reported an increase in spending for the digital transformation of public service projects across various European countries (Connolly, 2017). Figure 1 presents a graphical representation of expenditures for these countries in regard to digital transformation.

BUDGET FOR THE GOVERNMENT DIGITAL SERVICE (GDS)

IN £ MILLIONS

The GDS is responsible for the digital transformation of government to make public services simpler and more efficient



National Audit Office 2017

Figure 1. European National Audit Office's report. Republished from "upgrading the public sector to an e-government. Digital Transformation," by P. Connolly, 2017 (https://www.raconteur.net/digital-transformation/upgrading-the-public-sector-to-an-e-government).

Governments, therefore, have to conduct extensive cost-benefit analyses with regard to adapting and adopting new technology (Wang & Lo, 2016). That is, governments need to weigh citizens' needs and expectations, governmental departments' abilities to provide effective and efficient services, and the continuation of good governmental practices and administration through technology, with the costs associated with infrastructure development, training and resources, and speedy implementation of digitization (Weerakkody, Irani, Lee, Osman, & Hindi, 2015). Governments also need to view digitization in terms of the potential long-term benefits and cost reductions that it can offer departments and citizens, as well as the ability to remain competitive and aligned with other countries' digitization and development (Wang & Lo, 2016; Weerakkody et al., 2015).

To that end, Connolly (2017) suggested that Sweden and South Korea have improved the lives of their citizens through digital transformation. The U.S. federal government has also seen much success in the implementation of various online services, such as those used and offered by the Internal Revenue Service, Social Security Administration, and the Department of State passport programs (Social Security Administration, 2016). Farrell and Goodman (2013), and Neely (2014) also determined that digitization was often met with faster and more effective service delivery, which could greatly benefit recipient citizens.

Deploying e-services to citizens also encourages educational growth and accessibility. This is because both citizens and officials need to learn about the new

technology, which can also open new avenues of knowledge and employment opportunities within the public sector, as well as generally uplift citizens (Blažun et al., 2012; Horrigan et al., 2016). The more government departments require digitization, the more likely they will be to invest in and supply communities with the infrastructure and education necessary to partake in such digitization (Kamarck, 2013; Wood, & Jenkins, 2001). Access to technology has been proven to increase additional educational and employment opportunities (Alum, 2015). Thus, government digitization could lead to general citizen upliftment.

As e-government services continue to transition to online platforms, some researchers have argued that access is not available to all demographics, specifically older adults (Gonzalez-Zapata, & Heeks, 2015; Kernaghan, 2015; Smith, 2014). In particular, disadvantaged communities and the elderly tend to lag behind, or have limited access to, digital resources and governmental services (Alum, 2015; Smith, 2014). While this current study will not focus on disadvantaged communities, and how individuals therein experience or are excluded from e-government, future researchers may wish to conduct studies in this regard. For the purpose of this study, it is important to note that researchers have found that generational differences between populations can add stress to older adults as this population attempts to communicate using digital means instead of more traditional and familiar face-to-face connections (Gonzalez-Zapata & Heeks, 2015; Smith, 2014).

Furthermore, although the use of technology can enhance e-services and provide cost saving measures for the government, studies are still needed to determine whether the reduction of traditional services elevates consumer concerns, or in some other way potentially negatively impacts the population, in particular, older adult citizens (Kernaghan, 2015). Research has, however, already been conducted regarding older adults' level of and ability to access e-services. Some researchers found that some older adults do not have the necessary training on digital devices needed to stay abreast of e-government changes (Davey et al., 2011; Smith, 2014). Researchers further noted that many older adults are not privy to dynamic changes associated with newer technology devices because they either do not have access or knowledge on device use, or are intimidated by changing technology, and thus continuously and increasingly lags behind (Quan-Haase et al., 2016). This current study adds to this extant research is in its exploration of such older adult technology concerns within a specific e-government context (namely the Stafford County, VA, website). This study also adds to the literature by highlighting not only the experiences, use, and willingness of older adults to adopt e-government, but also their suggestions for how and where e-government can be improved to assist older adults in utilizing and transitioning toward this technology more effectively.

Transitioning to e-government without the input of citizens, according the Obama Administration, misses the mark in understanding public needs (Federal Register, 2009). Collaboration measures foster open government objectives in a manner that elicits public

opinion (Kernaghan, 2015). Khanh (2014) believed that critical factors regarding public administration, social influence, and technical challenges could prohibit or ensure successful implementations of e-government, depending on how effectively the government took heed of citizen needs. Khanh (2014) quantitative study took place in Vietnam, but it is likely that similar findings may be evident within the U.S. context. This current study, therefore, begins to fill this U.S.-related gap and likely assist the Stafford County government in meeting citizen (and especially older adults) needs through consulting with citizens regarding their experiences, use, and willingness to adopt e-government.

Measuring e-government Performance from the Citizen Perspective

The demand for e-government by older adults directly correlates with their satisfaction with e-services (Carter et al., 2016). Local governments have a more direct opportunity to provide services and receive immediate feedback over larger agencies when it comes to monitoring (older adults) citizen satisfaction with government services (Stafford County Government, 2016; Statista, 2017). However, Molnar's (2015) quantitative study presented that older adults are the least reviewed population, and that there is minimal understanding of how online services benefit this population. Therefore, the researcher looked specifically at how older adults used e-government systems in Germany and Hungary (Molnar, 2015). Similar studies should also be conducted in the U.S. as it is important that government departments and researchers review this particular

population. Such reviews may greatly assist in improving older adults' experiences and satisfaction with e-government (Kernaghan, 2015).

As noted previously, e-government can be beneficial to citizens as it provides anytime and cost-effective access to services and programs to citizens in a convenient manner (Farrell & Goodman, 2013; Gupta et al., 2016; Molnar, 2015). However, some researchers have noted that older adults can find online services to be static and confusing (Greenwood et al., 2016; Van Volkom et al., 2014). On the other hand, Government can greatly benefit from implementing e-services in that online administration and process digitization can work to reduce costs and resources (Taylor et al., 2014; Venkatesh, Thong, & Xu, 2016). According to Venkatesh et al.'s (2016) qualitative review of the unified theory of acceptance and use of technology (UTAUT), the researchers found that the overall improvement of service delivery by electronic means is currently negatively influenced by underutilization. Technology and digitization work most efficiently and cost-effectively when more people begin to adopt and accept it (Venkatesh et al., 2016). Thus, it is important that Government measures e-government use to determine if, where, and how adoption and use can be increased. In this way, e-government will take less time to become cost-effective, and citizens and departments alike will begin seeing the benefits of technological processes. More research to substantiate this claim is, however, needed.

Measuring the effectiveness of e-government is challenging, however, as researchers seek to understand citizens' attitudes toward this innovative solution (Carter

et al., 2016; Venkatesh et al., 2016). Previous studies on e-government used models such as the UTAUT or technology acceptance model (TAM) to gauge citizens' approval of e-services (Hogue, 2016; Venkatesh et al., 2016). Other examinations of acceptance sought to determine barriers that kept citizens from using e-services, while still others attempted to determine which e-government websites were most accessible (Venkatesh et al., 2016; Yusif et al., 2016). In Meijer's (2015) Netherlands-based case study, the researcher determined that the quality and ease of use when accessing e-government sites were important for citizens' perception of value and participation in such a governmental approach. Thus, addressing barriers and improving accessibility is key for successful e-government solutions (Meijer, 2015).

Additionally, using e-services to submit forms and payments is not reliable if the functionality of the website is lacking (Cordella & Tempini, 2015). Thus, not only do e-government sites, as any other websites, need to be user friendly, so that even the least apt user can easily work within the site, but the site also needs to maintain security, privacy, and form accuracy integrity (Kamarck, 2013; Lee, 2017). Older adults are often concerned with the trustworthiness of technology and internet use due to their awareness of the rising problem of identity theft (Dwivedi et al., 2017; Gill & Crane, 2017). This population, therefore, often feels safer and experiences greater relief when allowed to conduct their business in person (Dwivedi et al., 2017; Gill & Crane, 2017). Government needs to find ways of allaying older adults' fears regarding online security and providing this population with the same sense (and reality) of safety in the e-government setting if

they wish to increase older adults use of this technology. The current study may provide some insight into how such a sense can be achieved.

A quantitative study conducted in both the U.K. and U.S. on the impact of quality constructs on trust and costs associated with user satisfaction on e-government revealed that trust and online service development required attention for citizen satisfaction (Carter et al., 2016). The U.K./U.S. study was not only focused on older adult citizens. However, the findings did indicate that collaborating with the public and addressing trust concerns related to e-government sites could go a long way to improving citizen adoption and use thereof (Carter et al., 2016).

Other recent U.S.-based studies also maintained the theme of including (older adults) citizens in political collaboration but recognize that such collaboration, particularly with regard to technology, was an understudied area (Grigoryeva et al., 2016; Khanh, 2014). Researchers, such as Grigoryeva et al. (2016), found difficulties in measuring older adults's attitudes toward e-services due to numerous limitations related to perceptions on aging, ailments, and diverse complexities that older adults associate with technology. In other words, previous researchers have attempted to measure aspects related to older adults and e-government but could not necessarily gain the needed insight to assist Government and policymakers in improving older adult adoption and use of the technology (Grigoryeva et al., 2016). What makes the Grigoryeva et al. (2016) study significant for this current study is that the authors conducted a quantitative study using opinion polls to assess the level of online service usage. The researcher for this current

study was able to use some of the Grigoryeva et al. (2016) questions and tweak them to form qualitative questions to pose to participants during the data collection interviews.

The difficulty of measuring e-government and older adults citizen satisfaction is driven by factors such as older adults' lack of technology-related knowledge and/or lack of access to this kind of technology (Keramati, 2016). However, programs such as the Federal Emergency Management Agency (FEMA) (2017), have come about as a means for measuring e-government-related innovation and citizen response thereto, which had previously been immeasurable. Public services such as those offered by the CDC have also become available online; providing real-time information that would otherwise be delayed if e-government was not available (CDC, 2017). Thus, the development, need, and use of such services speaks to a clear interaction between e-government and citizens, however difficult such interaction might be to measure (Carter & Bélanger, 2005; Gupta et al., 2016).

Another factor that may cause difficulties in measuring citizen e-government trends and interactions can be linked to e-government provisions such as websites being independently developed by different agencies, and differing public services being offered in relation to the relevant department, rather than through a centralized whole-governmental system (Keramati et al., 2016; Neely, 2014). This means that public services are often reliant upon the agency's care and quality when providing information (Keramati et al., 2016; Kernaghan, 2015). Thus, research is needed to ascertain not only (older adults) citizens' use of e-government, but how different e-government websites are

received and utilized by the public. This implies that numerous studies still need to be conducted to adequately measure e-government performance from the citizen perspective. The current study may, in part, provide such measurement through interviewing older adults citizens regarding d-government. However, qualitative studies, as well as larger quantitative studies, are still needed to substantiate and build on this study's findings, so as to present a more holistic picture of older adults e-government issues.

Performance measurement may also be assisted if, as the government continues removing traditional methods of communication and customer service offerings to make way for digitization, the government also strives for transparency and public participation in this process (Keramati et al., 2016; Kernaghan, 2015). Neely (2014) argued that transparency provides communication, accountability, and public insight to government performance. This transparency could make it easier for researchers and policymakers to determine overall e-government performance (Khanh, 2014). A development of policies protecting citizens could also potentially instill trust in future e-government initiatives, which could assist in measuring the success of these endeavors (Carter et al., 2016; Grigoryeva et al., 2016).

Older adults' Technological Adoption

A comprehensive study by Al-Jamal & Abu-Shanab (2015), on perceived ease of use and perceived usefulness based on age, concluded that these factors are determinants of e-government use by older adults. As technology evolves, agencies are constructing

creative ways to use information systems as assistive tools to help people stay active and independent, as indicated by the Federal Government (Novi-Corti et al., 2014). However, according to researchers such as Vichitvanichphong et al. (2014) who conducted a comprehensive literature review on the elderly and factors related to their technological use, assistive technology does not specifically indicate how it is effective in helping people, such as older adults, accomplish individuality. Furthermore, the capabilities of modern technology are far beyond some older adults' comprehension, which can lead to hindering rather than aiding their independence (Vichitanichphong et al., 2014). Older adults' rejection of or hesitance toward adopting or using technology is often misinterpreted as simple negative perceptions toward information technology, rather than being based on older adults having a likely skills barrier associated with technology use (Novi-Corti et al., 2014; Tsai et al., 2015). This skills barrier and continued lagging behind technological trends is often further compounded by older adults lacking the necessary access to technological infrastructure, devices, and internet connectivity (Van Volkom et al., 2014).

Realistically, the internet is not independent of technological devices. Therefore, older adults cannot begin to work within and successfully navigate websites until their concerns and skills barriers around basic technological devices and their functioning has been addressed (Yusif et al., 2016). The influence of digital advancements also poses a challenge for older adults with regard to acquiring the necessary resources (Boban et al., 2014), as well as how assumptions of citizens having at least basic technological skills

and knowledge can lead to discrimination against older adults attempting to use e-government websites (Mervyn et al., 2014). Such discrimination is further compounded by how younger demographics tend to spearhead technological advancement; their louder voices for technological change within government often leads to e-government solutions focusing on meeting their needs, rather than all (including older) citizens' needs (Connolly, 2017; NCOA, 2018; Rose et al., 2015). Research has indicated that older demographics often lag behind younger demographics with regard to new technology adoption; however, in Vroman et al.'s (2015), and Smith's (2014) respective quantitative studies, the researchers found that since about 2012, there had been a steady increase in usage of technology and internet among adults 65 years and older. Van Volkom et al. (2014) also stated that age influences how older adults use the internet, cellphones, social media, and networking technology. This finding implies that the older demographic does use and engage with technology, yet such engagement and use may differ from that of younger populations. Furthermore, in Smith's (2014) quantitative survey for the Pew Research Center, the author noted that health and physical ailments are also causative factors in if and how older adults use and/or adopt technology. Thus, in order to increase older adult citizens, use and adoption of e-government, policymakers need to understand how and why older adults might use e-government technology and service options differently than other demographics. This current study may shed some light on such differences.

Some researchers also indicated that technology itself could be used to assist older adults in mitigating their difficulties related to technology (Gustafson et al., 2015). In other words, if employed correctly, e-government solutions may be able to assist, rather than hinder, older adults' ability to navigate and effectively use online services and technological devices (Gustafson et al., 2015). Opposing researchers claim, however, that the decline of physical and cognitive health of aging adults may prevent some older adults from using technology altogether or create in them an inability to use technology as a way of mitigating their technological difficulties (Vroman et al., 2015). Thus, alternatives to technological-based services, or maintaining more traditional options, may still be necessary for older adults to access needed governmental services (Vroman et al., 2015).

Integrating technology efficiency into everyday life is a goal of e-government (Molnar, 2015). That is, technology should seamlessly interact with and make citizens' lives and communication with government easier (Molnar, 2015; Weerakkody et al., 2015). Government may attempt to include other technological advancements, such as social media, when attempting to achieve such everyday conformity between citizens and technology (Dwivedi et al., 2017). This is because many older people are already used to social media, and often use it to communicate with family and friends, create new relationships, and stay connected within their community (Waycott et al., 2015). E-government using such platforms may work well to assist older adults in transitioning toward other technology and websites in the future. However, more research is needed

into whether or not such an e-government transition strategy would be viable. It is also important to note that such an approach might not assist all older adults, as many over the age of 65 have noted that they find social media, such as Facebook, complex and difficult to use and/or understand (Waycott et al., 2015). This makes some technological developments not as conducive to older adults use as might initially be presumed (Wu et al., 2015).

Older adults also often fail to adopt new technology or are unable to successfully transition to conducting business online due to barriers associated with knowledge, training, and finances (Winstead et al., 2014; Wu et al., 2015). They also often fail to adopt technology due to inaccessibility, lack of product awareness, and/or because they are intimidated by and find technology difficult to understand (Van Volkom et al., 2014). The adoption of technology may further be influenced by socio-demographics (Niehaves & Plattfaut, 2014), ability or disability levels (Gustafson et al., 2015), or basic interest or disinterest in employing something new into their lives (Winstead et al., 2014; Wu et al., 2015). More research is needed into such factors and how these factors might influence older adults' ability and willingness to use and adopt e-government. While this study may provide some such research and findings, more research, especially of a quantitative nature, would still be needed for better substantiation and quantifiable results related to older adult transition to e-government.

Not all older adults are exposed to e-government services, which could also impact their adoption of this technology (Connolly, 2017). As a result, the participation

of older adults in using online portals, automated records, and new digital developments range from limited to nonexistent (Peral-Peral et al., 2015). Older adults' hesitance to adopt technology may also be due to their resistance to feeling forced to use information communication technologies to fit in with society (Wu et al., 2015). In other words, older adults might not understand, or they may dislike, having to adapt and conform to new, technological-based ways of conducting business that worked "just fine" in more traditional approaches (Aly & Munteanu, 2016; Peral-Peral et al., 2015).

Older adults may also be more resistant to technology adoption if they believe that little to no attempt has been made to allow for a slower transition and learning period (Carter et al., 2016; Molnár et al., 2017; Van Volkom et al., 2014). Thus, if older adults feel that technological change, or demands from government to adopt technological rather than in-person processes, are moving too quickly or being forced upon them, older adults may deliberately push back against such forced changes (Aly & Munteanu, 2016; Molnár et al., 2017; Peral-Peral et al., 2015). When older adults feel and/or fear forced change, it can advance their negative opinions toward future and current technological use (Rodrigues et al., 2016; Yagil et al., 2016). It is important, then, that shifts toward e-government and the policies that surround this push make it clear that help and time for learning and adjustment will be given to older adults. Government should also continue to run more traditional operations alongside e-government as a means of assisting and bridging access for older adults (Aly & Munteanu, 2016; Molnár et al., 2017; Peral-Peral et al., 2015; Yussif et al., 2016). In this way, older adults may feel less forced into

accepting technology, and may, as a result, be more willing to adopt e-government simply because they have the time to learn and feel that they have a choice in the matter. Again, however, more research into the area of how choice versus force may affect older adults' adoption and use of e-government is still needed.

There is also a repeated call for education for older adults in relation to technology use. For example, both Gustafson et al. (2015) and Friemel (2014) found in their respective quantitative studies that technical divisions, regardless of social factors, were not suggestive of social inclusion. In fact, latency in learning technical skills tended to decrease older adults' ability to connect socially (Van Deursen & Helsper, (2015a); Waycott et al., 2015). In Horrigan's (2016) study, the researcher reported that 14% of women over 50 were not using or have very little use of technology, while another 5% of women over 50 were not comfortable with using the internet for learning. Moreover, the study revealed that 33% of men over 50 were not as familiar with or lacked the necessary knowledge of newer technology and its concepts (Horrigan, 2016). Other studies also found that older adults were unlikely to make use of medical online services, such as those offered by Medicaid, due to their irregular use of the internet (Friemel, 2014; Mitchell, Bryson, Rauwolf, & Ingram, 2016). This makes e-government endeavors largely ineffectual for this particular demographic (Friemel, 2014; Mitchell, Bryson, Rauwolf, & Ingram, 2016). Because society, in general, is operating far more within technological and digital/online spaces, this lack of use and familiarity on the part of older adults tends to exclude this population from social interactions and easy everyday

functioning (Quan-Haase et al, 2016; Van Volkom et al., 2014). For e-government initiatives, such as those by Medicaid, to be successful and to ensure that older adults do not fall even further behind in modern technology-based social interactions, learning and technology-assistance programs for the elderly need to be developed (Friemel, 2014; Mitchell, Bryson, Rauwolf, & Ingram, 2016).

To that end, programs such as the Older Adults Technology Services (OATS) have begun to gain momentum (Gardner, Kamber, & Netherland, 2012). Such programs were created to address gaps in learning by offering technical training to older adults. The OATS program is currently reaching a vast number of older adults, in particular in urban and suburban areas (Gardner et al., 2012). However, some rural area older adults are unable to reach these services because public resources are limited (Gardner et al., 2012; Novi-Corti et al., 2014). More programs, services, and resources are needed to reach older adults in rural areas, as well as those from lower socioeconomic backgrounds who would otherwise not be able to access such training (Centeno, 2013; Novi-Corti et al., 2014). Due to the relatively recent development of such technology-teaching programs for older adults, there is also a great need for research into the effectiveness of such programs for assisting older adults in adopting new technology, which this current study does not cover.

Older adults also need to begin to understand why technical innovations such as e-government can be beneficial to them. Part of e-government benefits for older adults is that this electronic platform offers older adults a means of connecting to public services,

which can aid in their reconnecting to society and minimizing their experiences of social exclusion (Peral-Peral et al., 2015)**.** Furthermore, this study found that 51% percent of the participants did not adopt e-government for issues related to communication, trust, confidence, and health. Community social links also routinely balance older adult activities and aid them in actively engaging with one another (Waycott et al., 2015).

Broader technology, such as gaming systems, can also be used to promote wellness, socialization, and cognitive alertness amongst older adults (Centeno, 2013; Hogue, 2016). Government may well attempt to broaden its e-government scope and include community and gaming into its offerings as to assist older adults in connection and general health and wellness. Such broadening may, in turn, cause older adults to be more willing to adopt the technology, as they will see benefits outside of traditional Government functions for using the e-government systems. This is because older adults' limited or complete avoidance of technology use is often based on their desire to maintain in-person contact, rather than a misapprehension of technology use per se (Peral-Peral, Arenas-Gaitán, & Villarejo-Ramos, 2015; Van Volkom et al., 2014). Thus, if e-government could appeal to older adults' desire for socialization and help the older population understand that technology can provide more than just access to networks through its ability to connect people to their greater society, it is likely that more older adults may begin to adopt e-government (Niehaves & Plattfuat, 2014). Again, however, far more research is needed to determine whether such an e-government approach might be effective in increasing and improving older adults' experiences with e-government.

Research currently available that is aimed at the use of technology as a tool to enhance communication between older adults and society is often limited to studying older adults and their internet use (Levy et al., 2014). For example, Blažun et al. (2012) conducted a quantitative study on older adults' internet surfing habits, use of webmail, news blog reviews, and use of online banking in Finland and Slovenia. There was, however, little research on if and how older adults' internet use affected their feeling of social connectedness. One researcher did conduct a study to determine if older adults' social exclusion might be decreased by nurturing socializing through cognitive participation in online activities (Ziezulewicz, 2013). Other researchers found that older adults still tend to rely heavily on conventional social arrangements and methods of interacting with and receiving government services to support their retirement and maintain their social engagement (Gaugler, 2014; Warburton et al., 2013). Since society is rapidly increasing its technology-based social interactions, the older population will need to be supported and provided with innovative information communication technology development to assist them in transitioning from such traditional interactions to technological methods (Warburton et al., 2013). E-government may play an important role in such innovation by providing older adults with the needed infrastructure, training, and skills development. However, in order for this to occur, Government and policymakers would need to understand not only the different uses and potential for technology and services, but also what affects older adults' acceptance, use, and adoption thereof (Warburton et al., 2013). This current study may provide some insight into these

specific areas and pave the way for future research and additional technology-related policies that could assist older adults in adopting e-government and general technology in the future.

Data Collection Tools

The data collection techniques for this qualitative study were semi-structured interviews and secondary data from Stafford County, VA. Questionnaire surveys from previous research were modified into a comprehensive interview protocol for this research. A similar survey questionnaire instrument was used in prior research by Al-Jamal & Abu-Shanab, (2015) and the modifications into semi-structured interview questions afford more directed questions. Although the research by Zhang et al. (2015) was positioned on e-health, the innovation framework is applicable to this study. Thus, the semi-structured interview questions from the Zhang et al. (2015) study were relevant and useful in guiding the creation of research questions. The reason for using instruments influenced by prior research is that they have been previously vetted, which ensures that they are focused on many of the topics that Zhang et al., (2015) study shares with the current study. However, the instruments were slightly modified to capture relevant data for this research in a qualitative scope.

The questionnaire survey consisted of two parts. Part 1 was the questionnaire based on demographics related to age, gender, education, internet usage, and usage of the e-government services. Part 2 of the survey consisted of open-ended questions based on the existing questions from Zhang et al. (2015) and Al-Jamal & Abu-Shanab (2015).

Gaps in the Literature

More specifically these research data pertaining to older adults' experience, use of, and willingness to adopt e-government within the Stafford County, VA, context will add to the body of knowledge related to older adults and e-government (Grigoryeva et al., 2016). Through this study's findings, policymakers are provided with information on how to better implement e-government during future initiatives for specific populations. Future researchers will also be able to address gaps and conduct studies to substantiate the findings of this current study. The researcher also noted other gaps in the literature through the analysis of this literature review.

Summary and Conclusions

This chapter provided a discussion on the DOI theoretical framework for this study (LaMorte, 2016; Roger's, 1962; Zhang et al., 2015). Literature was also reviewed in relation to the adoption of e-government by older adults and some of the factors associated with their decisions. The analysis in chapter 2 noted a theme by some researchers that trust and transparency were necessary for older adults to adopt e-government (Aly & Munteanu, 2016; Biggs et al., 2013; Dwivedi et al., 2017; Gill & Crane, 2017; Keramati et al., 2016; Kernaghan, 2015; Peral-Peral et al., 2015). Other researchers highlighted aspects such as a lack of education and skills and fears of security as reasons why older adults are often hesitant to adopt technology (Davey et al., 2011; Friemel, 2014; Kamarck, 2013; Quan-Haase et al., 2016; Smith, 2014; Thomas & Mor, 2013; Wood & Jenkins, 2001; Weerakkody et al., 2015). It was also noted that assisting

older adults in maintaining their independence and helping them to understand the larger social and health benefits of adopting e-government and other technology may also improve their acceptance and adoption of technology more broadly (Aly & Munteanu, 2016; Bengtson & DeLiema, 2016; Boban et al., 2014; Molnár et al., 2017; Molnar, 2015; Peral-Peral et al., 2015; Price, 2015; Winstead et al., 2014; Wu et al., 2015).

Furthermore, research has established that the development of e-government offered tremendous gains for the government (Carter & Bélanger, 2005; Farrell & Goodman, 2013; Gupta et al., 2016; Meijer, 2015; Neely, 2014; Newcombe, 2014; Statista, 2017; Taylor et al., 2014). However, current policies and the general intentions of e-government did not always include or take into consideration that transitioning from traditional services to online service offerings would exclude certain populations, such as older adults (Blancato, 2017; Gonzalez-Zapata & Heeks, 2015; Lee, 2017; NCOA, 2018; Taylor et al., 2014). It is important for the Government to address all populations' concerns in order to best meet the needs of citizens who depend of their services (Aly & Munteanu, 2016; Bloom et al., 2015; Chen, 2010; Connolly, 2017; Federal Register, 2009; Kamarck, 2013; Peral-Peral et al., 2015; Rahmawati et al., 2017; Rose et al., 2015).

As the older adult generation continues to age and retire, additional public services are needed to support this population (Pew Research Center, 2010; Social Security Administration, 2016; Sonnega et al., 2014; Taylor et al., 2014). According to research reviewed in this chapter, older adults are living longer and causing strain on current and previously planned social structures (Christiansen et al., 2016; Newcombe,

2014; Office of Management and Budget, 2016; Price, 2015; Social Security Administration, 2016; Winstead, 2014; Zajacova et al., 2014). The government has a responsibility to develop policies in support of aging adults as well as to assist them in navigating technology innovations (Khanh, 2014). According to the Obama Administration (Federal Register, 2009), allowing public participation and providing open government access will promote a more democratic position amongst the government and citizens. As society continues to depend on technology, and the government transitions to more elaborate digital platform service offerings, leveraging and considering the older generation's knowledge and needs may provide a framework for improved future adoption. This current study may, in part, assist policymakers in such improvements and increased older adults e-government adoption. Chapter 3 details the methods employed in this research study.

Chapter 3: Research Method

Introduction

As the older adult population continues to age, they are less likely to engage in learning or to use more advanced technology. As government entities continue to transition many public programs to online services, which has led some older adults to benefit less from these programs (Choudrie, 2016; Harrison & Knell, 2018). As government leaders promote policies to modernize programs and services to comply with the e-government Act of 2002, there is debate among activist, such as the American Civil Liberties Union, and local governments about public transparency (Harrison & Knell, 2018). Lobbyists are arguing for public inclusion in government decisions to deploy technical solutions like e-government (Harrison & Knell, 2018).

Local governments are not exempt from using e-government, and therefore their policies must comply with federal legislation. In Stafford County, VA, the local government implemented its version of e-government in 2012 through an online portal. This customer portal has received numerous awards within the past few years for its advancements in e-government. However, based on communication with knowledge insiders there has been little to no research on citizen evaluations of this e-government tool. More specifically, there is no research measuring citizen satisfaction and usability of the system. The purpose of this qualitative exploratory study was to gain insight from older adults as to their ability and willingness to use online public services. Additionally,

I explored older adults' satisfaction with using e-government services over traditional means.

In this chapter, I will discuss the methodology for this study. First, the research design and rationale will be explained, followed by the role of the researcher. Next, I will present the specifics of the methodology, including the participant selection logic, instrumentation, procedures for recruitment, participation, data collection, and the data analysis plan. Finally, issues of trustworthiness, as well as ethical procedures, are discussed.

Research Design and Rationale

The overall research question was, how do older adults aged 65 and older in Stafford County, VA, access and use e-government? The subresearch questions were as follows

SubRQ1: What e-government public services are older adults using in Stafford County, VA?

SubRQ2: What reasons are older adults self-reporting for their decisions to use or not use e-government services in Stafford County, VA?

SubRQ3: What suggestions do older adults have for how which Stafford County, VA, can improve e-government services for use among older adults?

The implementation of e-government to provide continuous access to services and programs and cost savings for the government was a purposeful initiative by the federal government. In a study by Khanh (2014), the transition to e-government in Vietnam

resulted in a decrease in wait times and an increase in productivity and cost savings for the government. However, the cost of e-government is passed on to older adults, as they are required to pay for Internet access and devices to access these services. Some researchers are concerned about the cost of online services compared to traditional face - to -face services for citizens specifically older adults (Weerakkody et al., 2016). Government's transition to online services has reduced many traditional service offerings, and researchers have found that the older population has benefited less from this transition (Weerakkody et al., 2016; Zhang et al., 2015). In some cases, older adults in rural areas were eliminated from local services. For this reason and others some older adults are dissatisfied with e-government and its implementation (Zhang et al., 2015). Researchers have found that older adults are the slowest demographic to adopt e-government (Anderson & Perrin, 2017; Khanh, 2014; Knell, 2018; Kernaghan, 2015; Neely, 2014; Phang et al., 2005).

The topic of this study was the use of e-government among older adults aged 65 or older who live in Stafford County, VA. To understand how these individuals, use e-government and how the use of this technology diffuses among older adults, I used Roger's DOI theory as a framework. Katz et al. (1963) found that the DOI framework, from a sociological perspective, included a group's or an individual's perceptions over a length of time. To better understand these perceptions, I used the qualitative method, which allowed participants to provide their thoughts, experiences, and perspectives on the research topic. I collected data by conducting interviews.

Based on my review of the literature, researchers have not extensively used the qualitative research tradition in their studies of older people and the impact of e-government. This lack of research has limited researchers' ability to understand the complexities of technology acceptance. In previous studies, the perceived usefulness, system compatibility, attitudes, and behavior against innovations have been measured quantitatively, which has left a gap in the body of knowledge (Khanh, 2014; Mahajan & Peterson, 1985; Roger's, 1962). This model was appropriate for the current study because of my need to examine the intricacies of how older adult citizens perceive and use e-government in comparison to traditional face-to-face services. I explored participants' satisfaction, willingness, and ability to use e-government. The DOI theory according to Roger's describes several degrees of how adopting new ideas at various times and the reasons behind the adoption (as cited in Khanh, 2014).

I was concerned with details regarding older adults' ability and willingness to use e-government over traditional service offerings such as face-to-face interaction. The qualitative tradition was conducive, I concluded, for describing older adults' satisfaction, use of the technology, and general thoughts about its implementation. A qualitative study such as this one is broad in nature and aimed at gathering an intricate understanding of a problem through in-depth interviews. Due to the availability of various sources of data, and specific qualities of the topic of interest, a case study approach was the best fit to this research. Yin (2014) defined the case study as a method for gaining a deep understanding of a very specific case or concept through varied methods of data collection, often with a

focus on interviews. In addition to interviews, census data and Stafford city and County data were used to help triangulate the findings within this study.

Role of the Researcher

My role as the researcher was to conduct a nonbiased study. As the researcher, I was the sole collector of data throughout the entire research process. To reduce any issues of researcher bias, I used bracketing. Researchers use bracketing in qualitative research as a method to limit biases of the researcher's ideas and thoughts that may influence the research process (Tufford & Newman, 2010). In addition to bracketing, I chose a population that I do not work with, and was not likely to have any relationship with, professional or otherwise. To bolster participation rates, I was responsible for providing participants incentives for participation, including light refreshments and a small monetary incentive (e.g., a $5.00 gift card to Walmart) for participating in the study.

Methodology

In this section, I will describe specifics of the methodology. First, I will discuss the participation selection logic. Next, I will discuss the instrumentation. I will then explain the procedures for recruitment, participation, and data collection. Finally, I will end this section by describing the data analysis plan.

Participant Selection Logic

The population was older adults age 65 years and older who are retired from full time employment and who live in Stafford County, VA. I divided the older adults based on era, consisting of Baby Boomers (born in 1944-1964) and the Silent Generation (born

in 1925-1943). There were an estimated 74.1 million Baby Boomers in America in 2016, while over a quarter of a million people were in the Silent Generation (Colby & Ortman, 2014). In the same year, Stafford County reported over 128,952 people over the age of 65 years old. There was great potential for data collection in this area because of the number of older people living in this area. Additionally, it was convenient since the researcher lives in this region.

Purposive sampling was used to select a sample. This is a type of non-probability sampling in which the researcher selects participants based on criteria, which is very important to case study research as the sample must have direct experience with the topic of phenomenon that represents the case (Yin, 2014). This allows the researcher to ensure that only a relevant sample is obtained (Ritchie, Lewis, Nicholls, & Ormston, 2013). In order to participate, individuals had to be at least 65 years of age, retired from full time employment, and live in Stafford County, VA independently or in an older adult living community, and must be able and willing to participate. Upon first contact, participants were asked if they have any issues that they believe would cause them to be unable to participate but were not asked for details if they did not feel they applied.

According to Yin (2014) the nature of case study research necessitates a smaller sample than other methods of qualitative research. This is due to the consistency of the case, wherein all participants should be similar in terms of demographic representation, experiences, and topic of discussion during interviewing. Because there is such a high level of consistency, it is usually possible to achieve saturation with a sample size of

between 6 and 8 participants (Yin, 2014). Establishing rigor this study sampled 21participants who were older adults from the Stafford community. Twenty-one participants provided saturation without having to sample additional participants. Themes were developed after the data collection provided by the twenty-one participants.

Instrumentation

The data collection techniques for this qualitative study were semi-structured interviews and secondary data from Stafford County. Previous research by Al-Jamal & Abu-Shanab (2015) and Zhang et al. (2015) provided the foundational construct of the proposed questionnaire. A pilot test was provided to three individuals in the proposed sample population to provide comments on font size, readability, content, and an overall understanding of the questionnaire. The questionnaire was modified based on the test participants recommendations as necessary. The interview questions for the pilot test was given informally to the test participants.

The questionnaire consisted of two parts (see Appendix A). Part 1 was the questionnaire on demographics related to age, gender, education, and internet usage. Part 2 of the survey consisted of open-ended questions. To obtain more in-depth information the interview involved answering these open-ended interview questions in a semi-structured interview setting. The questions on both parts were simple and concise. Participants were asked the demographic questions verbally, and the researcher marked the survey to note their response. Consent forms were matched with this demographic sheet and a pseudonym created to use as a confidential way of identifying each

participant. The interview in total covered the following six points: (1) basic demographic information, (2) usage of e-government portal over traditional methods of communication (3) awareness of the e-government portal, (4) perceptions of e-government over traditional communication methods, (5) prior experience using e-government, and (6) their intention on using future e-government as a service. However, based on its semi-structured nature, participants were able to stray from the direct answers and provide additional or unexpected information (i.e., items not on the list), as long as it was relevant.

The interviews were a less directed method of data collection, focusing more on the participant rather than the interviewer and allowing them to share their thoughts using simple prompts (Krueger & Casey, 2008). The interview was based on showing the participant the Stafford County portal and asking a series of questions associated with the site. Moreover, in consideration of physical ailments such as vision, the questions were simplistic and concise. The intent of the interview was to record the views of older adults in Stafford County, VA. Questionnaires provide a standardized set of questions to individuals who may represent a sample of a larger population (McGuirk & O'Neill, 2016). However, a random sample can be used in place of an entire population (Krueger & Casey, 2008).

Secondary Data

The use of secondary data is important to case study research, as it allows for triangulation to both validate the findings and to gain a more comprehensive

understanding of the case of interest (Yin, 2014). To accomplish this aspect of the study, data was collected from the Stafford County public records. The data include information such as how many people access the portal daily, specifically older adults; number of users with computers; and preventive factors precluding the use of the portal.

Procedures for Recruitment, Participation, and Data Collection

Participants were recruited on a volunteer basis from independent living facilities, local churches, local public libraries, and older adult community centers in Stafford County. Each facility or location received detailed flyers with information on the study and how to participate (see Appendix B). These flyers included the name, a brief explanation of the study, invitation to participate and description of the incentives, and contact information for the researcher, both email and phone number. Interested parties could reach out to the researcher directly using their preferred method of contact, thus providing their implied consent to be contacted with more information and screened for basic inclusion criteria through a quick question and answer process. These individuals then received an electronic copy of the informed consent form to review before deciding to meet for interviewing. Interviews were conducted at a time and place convenient to the participant. However, many of the interviews took place at the local YMCA which was found to be the most convenient for most of the participants. Other locations, such as a local library conference room, were offered. Upon meeting, participants received a physical copy of the informed consent form and asked if they have any questions about the form before they signed. The participants had the opportunity to quit the research at

any time without penalty by simply contacting the researcher and sending their request either by phone, email, or in person during the interview. Participants were offered light refreshments and a small monetary incentive (e.g., a $5.00 gift card to Walmart) for participating in the study. Monetary incentives were distributed when participants left the personal meeting, whether they chose to be included or decided to drop from the interview.

Data Analysis

I used NVivo software to determine possible major and minor themes within the data. NVivo was developed to support researchers in performing qualitative data analysis through the systematic evaluation and interpretation of text in order to recognize themes from the data (Sussman, Bailey, Richardson, & Granner, 2014). Use of this software allowed the study to be more transparent when conducting the analysis, as tasks, sequences, and documentation can be illustrated more easily than when conducting manual analysis (Silver & Lewins, 2014). The aim of the thematic analysis was to analyze, identify, and report themes that emerged from the data gathered, following the procedures for data analysis that Braun, Clarke, and Terry (2014) described. Since the data was already in a documented format, they were uploaded into the software as a series of Word (.doc) files in order to reduce the possibility of error during copying and pasting or retyping. Emerging themes were categorized following Braun, Clarke, and Terry's six steps.

Following this procedure, the data were transcribed. Braun & Clarke (2006) suggest reading and identifying patterns. The second step was to generate codes that were used to identify the specific themes. Third, the data were analyzed for themes, then the themes were reviewed, defined, and named. Finally, a report was produced of the findings (Braun & Clarke, 2006).

Issues of Trustworthiness

Qualitative researchers regard dependability, transferability, credibility, and confirmability to be criteria of trustworthiness, which researchers use to ensure the accuracy of qualitative findings (Anney, 2015). To provide dependability, detailed notes on events were taken throughout the data collection process. The notes were descriptive but did not mention any participants by name. Triangulation was used to ensure that the results from the interviews were consistent with the findings from the secondary sources of data, such as census and County data. Credibility was bolstered though consideration of saturation during coding, and more participants will be added to the sample if saturation is not achieved. Data saturation was met with twenty-one participants.

Confirmability requires that a researcher uses methods to ensure that the study was directed by the participants and not by the bias or preference of the researcher. Confirmability is the degree to which the results of a study reflect the focus of exploration (Cohen, Manion, & Morrison, 2013). Data for this study were collected using questionnaires and interviews. The researcher did not have the ability to measure English proficiency; therefore, all questions were as basic as possible, avoiding wordiness and

extensive vocabulary. The questions on the survey were clear to participants with a grade 7 proficiency level. In addition to these safeguards, participants were provided with a brief summary of the themes resulting from analysis so that they could offer suggestions or detail if they felt the results did not reflect their thoughts on the matter through the process of member checking.

Ethical Procedures

Study procedures did not begin until approval was received from the Walden Institutional Review Board (IRB). Throughout the study appropriate procedures required by the IRB for conducting research on human subjects were followed. A copy of the permission to conduct research on human subjects from the IRB is included as an appendix. All potential participants received an informed consent form that provided details about the study, such as the confidential and voluntary nature of the study. Participants were informed that there were no negative consequences to refusing to participate or withdrawing from the study. Participants could withdraw from the study at any point in time by informing the researcher.

Participant identities were kept confidential. The names of participants were replaced with pseudonyms, and participants were only referred to by their pseudonyms. All physical documents and digital data were securely stored. Physical documents will be kept in a locked box for a period of five years, after which it will be destroyed with a cross-shredder. All digital data are stored on a computer secured with a password only known to the researcher. After five years, all digital data will be permanently deleted.

Summary

The study used qualitative methodology following the qualitative tradition and using a case study approach. Data for this study were provided by older adults aged 65 and older from Stafford County, VA; NVivo software was used to identify emergence of themes within the participants' narratives. The following chapter describes the resulting sample, explains the final procedures used in data collection and analysis, and presents the results of the analysis.

Chapter 4: Results

Introduction

The purpose of this qualitative, exploratory study was to gain insight from older adults as to their ability and willingness to use e-government services in Stafford County, VA. One-on-one interviews allowed for such an exploration. Insight gleaned from the data collected may help to improve policies governing the delivery and accessibility of these services to the older adult population. This research study had one overarching research question: How do older adults aged 65 and older in Stafford County, VA, access and use e-government? The subresearch questions were as follows

SubRQ1: What e-government public services are older adults using in Stafford County, VA?

SubRQ2: What reasons are older adults self-reporting for their decisions to use or not use e-government services in Stafford County, VA?

SubRQ3: What suggestions do older adults have for how Stafford County, VA, can improve e-government services for use among older adults?

The purpose of Chapter 4 is to present a thorough description of the data collection and analysis procedures, and the results of this study. To understand how older adults over age 65 engage with e-government online public services, I collected data through a series of interviews, public records, and published data from Stafford County, VA. The primary source of data came from open-ended interview questions.

Setting

I collected data from participants recruited through a local senior center, a local church, and the local library. In preparation for data collection, I put together packets that included questionnaires, a note sheet, a gift card (to Walmart for $5.00), and a sign-up sheet for study results. Prior to collecting data, I distributed flyers to the organizations, as approved by the IRB. One assumption that I made when proposing the study was that older adults few things to do and were always available. I discovered that this assumption was incorrect during the 6-week data collection period. Instead, older people in the research community were extremely busy. Many of the older adults I hoped to recruit were unavailable during the weekends and peak hours of the week. They participated in activities like taking vacations, caring for grandchildren, going on social outings, fixing up their houses, or helping people older than them run errands. I collected data early in the fall when children were returning to school and weather was unpredictable with frequent storms. Notably, a few of the older adults encountered unexpected medical issues or weather-related problems that caused damage to their houses during data collection. This time of year was also when older adults in the community often traveled. However, I worked around the participants schedules by meeting them in a common location where they met for previously scheduled weekly events.

I also encountered other scheduling challenges during data collection. Another challenge was my own full-time schedule and 1-hour commute to Stafford County. In the future, I would not limit myself to specific criteria for meeting times and locations.

Demographics

Twenty-one people participated in this research study, including four men and 17 women. Most participants (15) were between the ages of 65 and 74. Five participants were between the ages of 75 and 84, and one participant was over the age of 84. The educational level of participants varied as well. Five participants reported having a high school diploma, and another five participants had attended some college. Seven participants had obtained a bachelor's degree or other professional/technical equivalent. The remaining four participants had continued their post baccalaureate education and had master's degrees. Figures 2 and 3 provide an illustration of participants' ages and education levels, respectively.

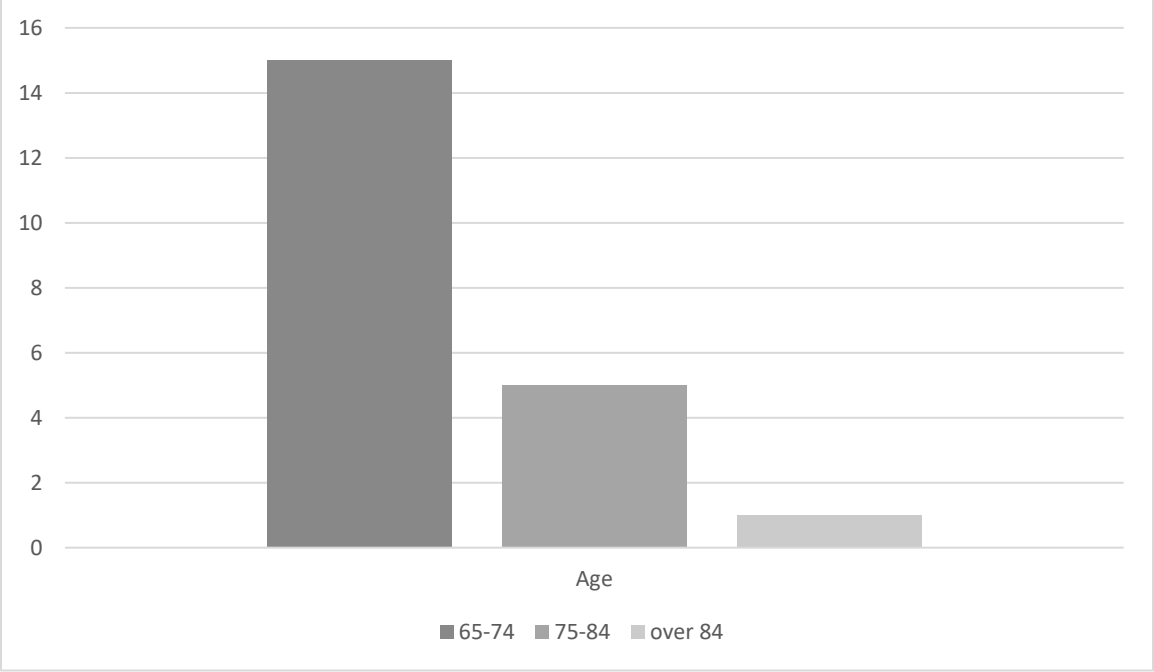


Figure 2. Participants' ages.

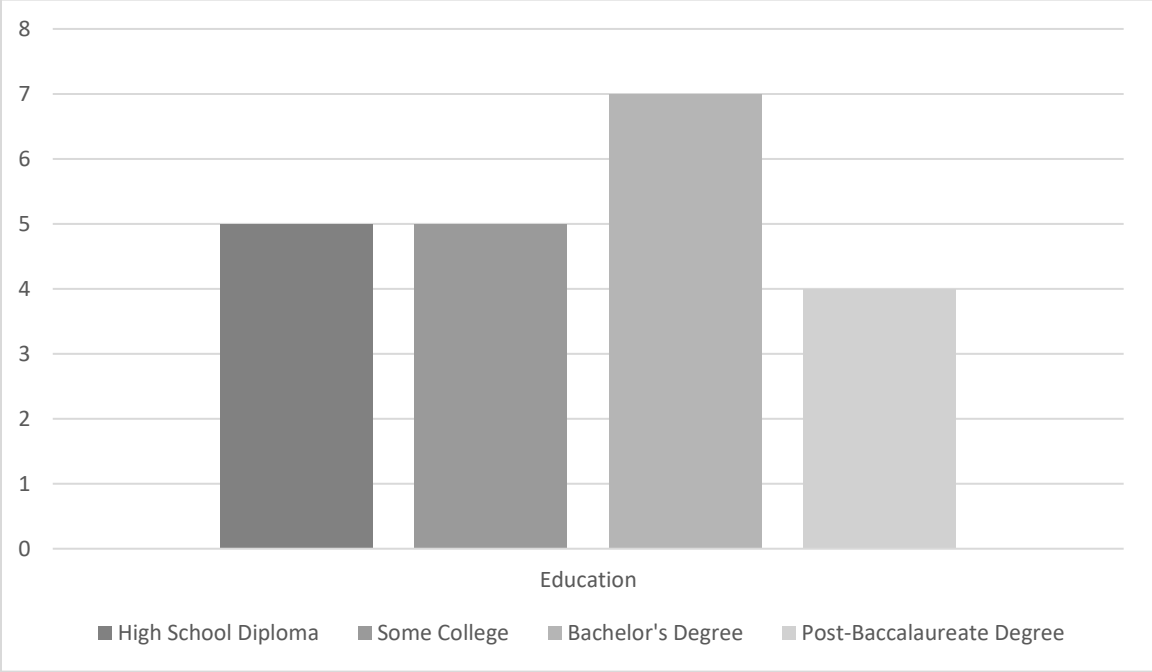


Figure 3. Participants' level of education.

Data Collection

Prior to collecting data, I obtained approval from Walden University's IRB (# 08-13-18-0153196) for my research. I piloted the interview questionnaire as required by the IRB. The pilot questionnaires were sent to three people ages 65 and older living in California. The volunteer participants did not indicate any required changes to the questionnaire. A Stafford County local church graciously allowed me to speak to older adults during a social group, where I explained my study to approximately 45 older adults and distributed flyers. Over a period of an hour, five people signed up who were interested in participating. I had expected more to sign up based on the crowd size. I contacted the interested participants, screened them to ensure they met the inclusion criteria, and assigned time slots for interviews for those who met these criteria. Three

participants were excluded because they lived outside of Stafford County or were too young.

These initial participants provided me with additional contacts to recruit. The volunteers from the local church were very helpful, open, and willing to share their opinions and thoughts. I gathered much information from them. However, a few of attendees of the social group were not interested and stated that they did not know anything about computers or were just skeptical in general of the study.

Prior to collecting data from the Stafford County local adult center, I made an appointment with the director. The director showed me the area where I could sit, distribute flyers, and recruit participants. The best time of day to recruit participants was during brunch. However, out of the three who expressed interest, only one of them participated in the study. The other two had a change of heart. At this point, I noticed a pattern of skepticism when the study was introduced as a discussion on any form of e-government. When I changed the introduction approach and focused on the participants opinion and views on e-government, they displayed more of an interest in participating.

I posted flyers at the local library, but I did not receive any interest from possible participants. The location of the flyer board was not in a very common area. There was very little movement for about a month. In the fifth week, I reached back out to the local church coordinator who spread the word about my study, and shortly after a few more possible participants contacted me. These participants told their friends within the church community about my study. One participant whom I had recruited based on a

recommendation told her social group about the opportunity after completing her interview. It was because of her that I was able to gain the trust of others who then eagerly volunteered. Data were collected from participants in public places such as the local YMCA and coffee shops, in addition to the library and local church. These places were most convenient for the participants. As described in Chapter 3, light snacks were provided to participants who met at the YMCA because it was considered the primary location with the most appointments. I made my schedule flexible to meet with participants.

After collecting data from a little over half of the participants, I noticed that they were not particularly satisfied with a break in their routine and if approached while participating in their activities, they were quick to dismiss me. Many of the participants explained that older adults are often skeptical of new people or changes in their surroundings because they are vulnerable to being taken advantage of. Due to their skepticism, some older adults in the study agreed to meet but later changed their minds. Most participants reported that the incentive was not a primary motivating factor in agreeing to participate. I was told by most of the older adults in the study that they were very impressed with my study and they were happy to help. Some stated that e-government in addition to technology in general is a problem because of how quickly it evolves; they did not want to be left behind. Others wanted to share their opinions. The participants seemed very surprised and thankful to receive an incentive for participation, and some did not want to accept it, as they were simply happy to help. However, they

were all very grateful and accepted the incentive while expressing their happiness that I was paying attention to their population.

Data Analysis

After all interviews were transcribed, I used NVivo, a computer-assisted qualitative data analysis tool, to assist with data analysis. To perform thematic analysis following the guidelines suggested by Braun, Clarke, and Terry (2014) and Braun and Clark (2006), I uploaded all transcripts into the NVivo program and began by reading and rereading all transcripts to familiarize myself with the data. Then, I reviewed these transcripts line-by-line, highlighting and coding pieces of data, either words or phrases, that were salient to the research questions. I coded passages related to the ways in which participants used e-government online services, for example, and assigned them with the code *services they use*. I did this for other passages, searching for examples of the reasons that participants gave for using or not using e-government online services, and for suggestions that participants made for improving e-government online services in the County. Following this, I reviewed all codes and began analyzing them for similarities, grouping codes that expressed similar sentiments together, like all statements with the code *services they use*. This process produced the initial themes. I reviewed all initial themes for placement, checking all codes against the themes to ensure that the themes accurately reflected the codes contained within them, making adjustments as needed. I created supporting subthemes within each theme. Then I defined and named these themes and subthemes with a brief, descriptive title. This structure of the themes and subthemes

is presented in Table 1. This chapter contains the final step of thematic analysis, the written report of the findings.

Table 1

Themes and Subthemes

Theme	Subtheme
Theme 1. e-government Services	Commonly used services
Theme 2. Using e-government	Reasons to use
	Reasons not to use
Theme 3. Suggestions for e-government Services improvement	Ease of use

Evidence of Trustworthiness

As previously mentioned in Chapter 3, qualitative researchers regard dependability, transferability, credibility, and confirmability to be criteria of trustworthiness, which researchers use to ensure the accuracy of qualitative findings (Anney, 2014). For dependability, detailed notes were scribed on the participants' questionnaires based on the information provided during the open-ended questions. I was careful not to include personal information. Credibility was revealed through coding and

consistent themes. The results of the participant interviews during the data collection process were consistent with secondary data from previous research. The analysis of data provided consistent themes that aligned with both the secondary data results and answers from the participants. Additional participants were not needed because the information provided by the 21 participants provided saturation. Methods used to prove confirmability were open-ended questions asked during the interview session. The participants directed the interviews based on the answers they provided.

Results

I created three themes and four subthemes based on the data analysis. Theme 1 was e-government Services, and one subtheme, Commonly Used Services, supported this theme. Theme 2 was Using e-government, with two subthemes: Reasons to Use and Reasons to Not Use. Theme 3 was Suggestions for e-government Services Improvement, supported by the subtheme, Ease of Use.

Theme 1: e-government Services

Theme 1 addressed SubRQ1: What e-government public services are older adults using in Stafford County, VA? This theme was defined by the ways in which participants used e-government services in the County under study and, in particular, which services they commonly used. Theme 1 contained one subtheme, commonly used services.

Subtheme 1: Commonly Used Services**.** Participants described the myriad ways that they use e-government public services. Five participants stated that they use e-government public services for their taxes. Participant 9 found it “pretty easy to pay

property taxes," and said that these public services were handy for filing taxes. Participant 11 also accessed e-government public services at tax time, but "only with doing taxes." Two participants used e-government public services for internet research on government services. "I just do a lot of research on the computer for [the County] government," said Participant 2. Participant 18 accessed Medicare and social security online but also used e-government public services to review new tax laws. Two participants reported using e-government public services to pay bills. Participant 10 liked to pay his/her bills online, as did Participant 6. Finally, two participants, Participant 13 and Participant 17, reported no prior experience with e-government public services. Figure 4 includes an overview of the services used by participants.

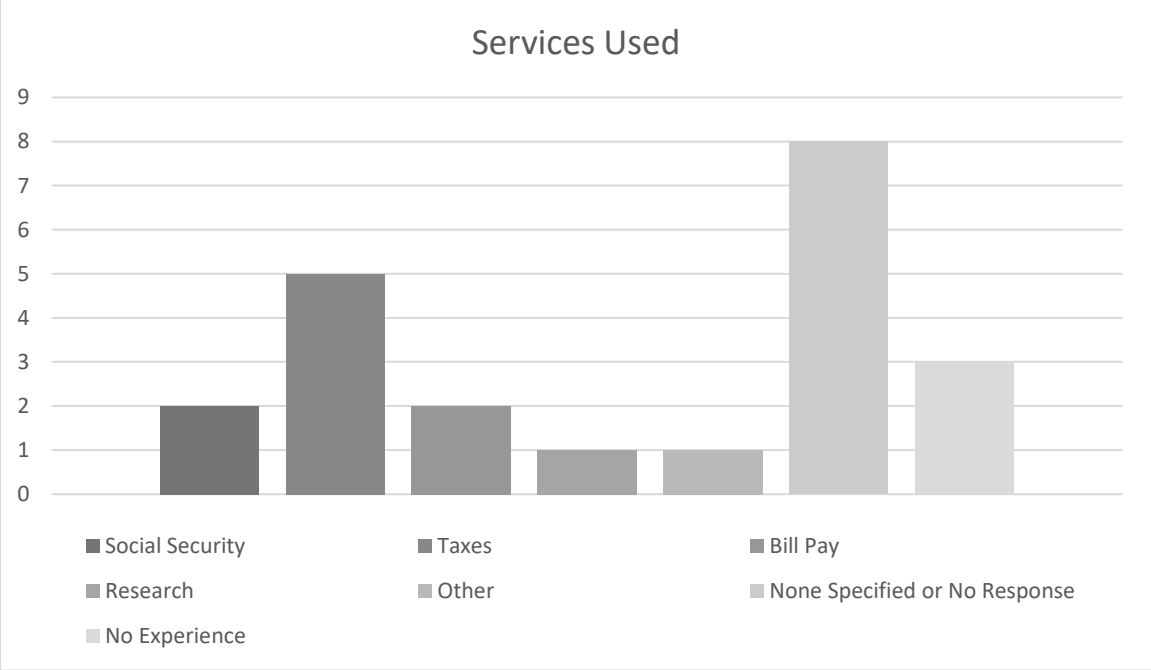


Figure 4. Services used.

Theme 2: Using e-government

Theme 2 addressed SubRQ2: What reasons are older adults self-reporting for their decisions to use or not use e-government services in Stafford County, VA? Theme 2 was defined by the decisions that participants made to use or not use e-government public services. Two subthemes led to the creation of this theme: reasons to use and reasons to not use.

Subtheme 2a: Reasons to Use. Participants described the reasons why they used e-government public services, which fell broadly into the category of convenience. Ten participants enjoyed the ease of online access to e-government public services. Participant 1 described e-government online services as helpful for retirees, because there is "an overwhelming amount of people retiring," and so if there are not enough staff for person-to-person interactions, e-government online services are helpful option. Participant 2 has always used e-government public services, which they learned from their job, which helped them to use these online services more easily. Participants 3 and 4 enjoyed the e-government online services option because it spared them a drive to government offices. This was important for Participant 4, who said that "time is limited" and sometimes offices are not open. Participant 6 stated, "If there are services and ways to save time and get things successfully done, it behooves me to try and use what's available." Participant 7 also liked the time savings that d-government online public services provided. This participant said they "would rather use internet services than wait in line."

Four participants also felt e-government public services were helpful for finding information they might need. Participant 8 said that these websites were very good for gathering general information, while Participant 10 stated, “if I am looking for forms or general information, it’s okay.” Participants 11 and 17 also thought they would use e-government public services to find information but said that they would need to know what they were looking for, or that the websites should direct them where to go.

Subtheme 2b: Reasons to Not Use. Despite participants’ use of e-government public services, they also described the reasons why they do not use e-government public services. One participant did not enjoy using e-government public services because of their vision; this was the only participant who described health concerns interfering with their ability to use the internet or computer. Three participants felt that there was too much information available for them online and this amount of information dissuaded them from using e-government online public services. Two participants did not like using computers. Participant 5 said that s/he “hates machines” and struggles with e-government public services. “I have a hard time,” said Participant 5. This participant continued, “There are too many links; it takes too much time to find what I want.” For Participant 5, these websites did not provide the convenience that others enjoyed about e-government online public services. Participant 6 also found the quantity of information available to be too much and the websites too complicated. This participant felt that the terminology was “too hard to comprehend.” Participant 7 stated, “websites are not logically

created…which make them very frustrating." As Participant 8 sad, "nothing on a computer is easy for me."

Six participants also noted that they preferred face-to-face interactions to e-government public services. Participant 1 believed that they could gather more information from a human than a website, and that through human interaction they can have questions addressed more easily. Participant 6 preferred to get information from a person as opposed to a website, as did Participant 9. "Never will any best e-government services supersede face-to-face services," said Participant 6. Participant 21 not only preferred to speak to someone in person when they required assistance, but also preferred "someone to do it for me," so that they could avoid the process entirely. Three participants (1, 8, and 19) preferred to look into someone's eyes when getting assistance with government services. For Participant 1 this was an issue of trust, because seeing someone's body language helped this participant know if the staff member was being truthful with them. Figure 5 illustrates reasons why participants do not use government e-services online.

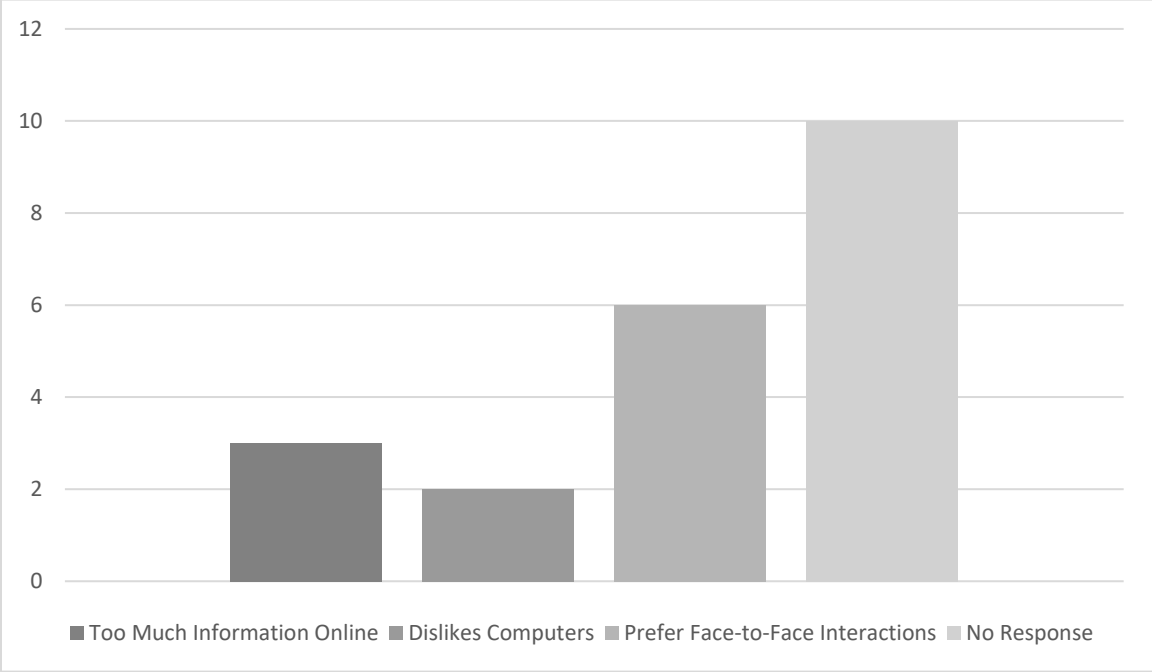


Figure 5. Reasons why participants do not use e-government online services.

Theme 3: Suggestions for e-government Services Improvement

Theme 3 answered SubRQ3: What suggestions do older adults report as ways in which Stafford County, VA can improve e-government services for use among older adults?

Participants shared their suggestions for how e-government services could be improved, particularly for older adult citizens. Theme 3 was defined by these suggestions. One subtheme supported the creation of this theme: ease of use.

Subtheme 3: Ease of Use. Three participants (1, 5, and 6) offered suggestions for improving e-government public services based on challenges they had with these websites and how to facilitate easier access. Participant 1 suggested that if there were Skype services available, s/he might use them instead of going to an office. Otherwise,

Participant 1 had no suggestions for e-government online public services that would make him/her use these instead of going to an office. Participant 5 wanted improvement to e-government public services so that they could find what they needed online. Participant 6 would like to see greater explanation of some of the online terminology, and clarification and examples to better understand the online services.

Summary

In Chapter 4, I presented the results of this research study and findings from thematic analysis. Older adult citizens in Stafford County use e-government public services primarily for their taxes, paying bills, and research. While using e-government public services provides them with time savings, a benefit which they enjoy, many still prefer to engage in these services face-to-face as opposed to over the internet. Participants enjoyed that they did not have to drive to government offices to complete tasks they could do at home. However, participants also wanted to be able to look another person in the eye when receiving information. Participants expressed trusting humans in person over computers and technology. Other participants lacked confidence in their ability to use the computer and navigate the e-government websites. They found the websites difficult to navigate and confusing, and cited health concerns like poor eyesight that led to computer disuse.

Suggestions for improvement came in the form of making these sites more easily accessible and less confusing. Too many links on e-government websites were confusing for participants when navigating to the services they needed. In Chapter 5, I will examine

these findings more closely, consider them in light of current literature on older adult citizens' use of e-government public services, and discuss the implications of these findings.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative, exploratory study was to gain insight from older adults as to their ability and willingness to use e-government services. I explored e-government website usage by older adults in Stafford County, VA, and how older adults used this information technology, if at all. Using a phenomenological research approach, I explored participant responses to predetermined research questions. Participants' perspectives for this study were gathered through face-to-face interviews as the primary data collection tool. I interviewed 21 participants living in Stafford County; this area was chosen based on the percentage of older adults living in the area.

I collected, coded, and analyzed data using NVivo, a qualitative data analysis tool. The three subresearch questions were coded into themes based on participant responses. The development of themes provided a thorough elements of the participants' experiences using e-government services. The following chapter includes my interpretation of the findings and discussions of the limitations and implications of the current study, as well as recommendations for further practice and research.

Interpretation of the Findings

Participants reported using various e-government services; however, the most commonly used service was the Internal Revenue Service to handle tax matters. Additionally, e-government was used for research purposes and for paying public services bills. When asked why the participant did or did not use e-government services,

over 28% participants reported that they preferred face-to-face interaction over online services, while 10 % disliked using e-government services, 14% reported e-government sites provided too much information, and 48% reported no response. More specifically, overall 49% of participants reported using e-government services, while the remaining 51% of participants reported not using e-government because of vision issues, the overabundance of information, a personal dislike of technology, and/or the belief that e-government was not conducive for self-management. When asked for suggestions for improvement, participants suggested that e-government can be improved through website development that ensures easier access and finding of information. Additionally, participants suggested that government staff could improve e-government by providing explanations of online terminology, examples of services, and instruction on primary online services.

As indicated in Chapter 4, I developed themes based on my coding and analysis of data collected from participants. As reflected in Themes 1 and 2, out of 21 participants, only two reported not having used e-government while the other 19 participants used e-government services in various ways. Previous research indicated that aging adults are often slow to adopt newer technologies based on perceptions that technology is complex and difficult to navigate, feelings of inadequacy, lack of knowledge on how to operate technology, and mistrust in online security (Choudrie & Alfalah, 2016). Older citizens may also find it harder to accept changes in operations, instead feeling more comfortable with more traditional ways of interacting with and gaining services from the government

(Meijer, 2015; Quan-Haase et al., 2016). However, in this study only two participants reported having a difficult time using computers or not comprehending website material. Ten of the participants for this study reported using e-government because of convenience. However, six participants preferred face-to-face interactions because they can ask more questions, have someone take care of the issue for them, and look into someone's eyes.

Researchers found that older adults' hesitance to adopt or use technology is often misinterpreted in studies as negative perceptions by older adults toward information technology, rather than being based on older adults having a likely skill barrier associated with technology use (Novi-Corti et al., 2014; Tsai et al., 2015). The skills barrier and lag in adapting to technological trends is often further compounded by older adults lacking the necessary access to technological infrastructure, devices, and Internet connectivity (Van Volkom et al., 2014). The results of Themes 1-3 did not disprove perception as an indicator associated with the adoption of e-government services. Three participants reported in Theme 3 that improvement of e-government services is needed for a better understanding. Condensed material and poor website design were reported by participants as a problem when searching for information on some government sites.

Themes 1-3 indicated various factors which influence older adults' ability and willingness to use and adopt e-government. Previous findings in other research suggested that older adults often fail to adopt new technology or are unable to successfully transition to online business due to barriers associated with knowledge, training, and

finances (Winstead et al., 2014; Wu et al., 2015). Older Adults also fail to adopt technology due to inaccessibility and lack of product awareness, and because they are intimidated by technology and find it difficult to understand (Van Volkom et al., 2014). The adoption of technology may further be influenced by socio-demographics (Niehaves & Plattfaut, 2014), ability or disability levels (Gustafson et al., 2015), or basic interest or disinterest in employing something new in one's life (Winstead et al., 2014; Wu et al., 2015). Participants in this research did not report transition, product awareness, socio-demographics, or interest as factors in their use of e-government. e-government was described by one participant as a good service since many older adults are retiring or retired. Researchers found that if older adults feel that technological changes or demands from government to adopt technological processes are moving too quickly or being forced upon them, they may deliberately push back (Aly & Munteanu, 2016; Molnár et al., 2017; Peral-Peral et al., 2015). In this study, results show that most participants found ways to embrace e-government rather than push back on using technology.

Even though they are users of public services, older adults are often not considered when introducing new technologies (Rodrigues et al., 2016). Tis lack of consideration for a large part of the service-receiving population can result in inadequate service delivery to this demographic or potentially exclude older adults from necessary services (Friemel, 2014; Kernaghan, 2015). These service issues, in turn, can have a negative effect on both social and governmental operations, and can lead to additional

costs to government and to older adult citizens in order to bridge the technology-service access gap (Wu et al., 2015; Yusif et al., 2016).

This study noted the expected findings, confirming older adults as laggards when adopting innovations such as e-government, as indicated in previous research (Roger (1962); LaMorte (2017); Zhang et al., 2015). Aly and Munteanu (2016) and Peral-Peral et al. (2015) asserted that some older adult citizens may experience a loss of feelings of independence as well as added stress or frustration when interacting with or seeking governmental services such as e-government due to their inability to access these services. Additionally, the need for additional assistance and the failure of government to meet older adults' needs through alternative technology strategies may exacerbate these feelings among older adult citizens (Aly & Munteanu, 2016; Peral-Peral et al., 2015). Furthermore, researchers have determined that many older adults often lack the necessary skills, knowledge, or technological accessibility to keep up with ever-increasing trends toward digitization (Dwivedi et al., 2017; Molnar, 2015; Winstead et al., 2014). Although stereotypes associated with aging commonly reinforce that older adults are outdated or slow adopters (Kulik et al., 2014), very few attempts have been made to aid older adults in gaining the necessary skills, knowledge, and resources to improve their adoption of and adaption to technology (Kamarck, 2013; Winstead et al., 2014; Wood & Jenkins, 2001). As such, it is important to assist older adults in maintaining their independence and ability to access government services for and by themselves for as long as possible (Sonnega et al., 2014; Taylor et al., 2014). This study found that older adults are willing

and able to learn how to use technology if provided an opportunity. Thus, providing and making technology seminars or learning sessions available to older adults could lessen the knowledge gap.

Theoretical Interpretation of the Findings

Roger's (1962) DOI theory provides a way to understand how people of specific demographics or class convert to accept and endorse innovations over a period of time. Additionally, Roger stated that in order for diffusion to take place and for society, as a whole, to accept innovation, the process of diffusion would need to take time, and be accepted by varying groups, or "adopters," at different times. In essence, Roger established five categories of adopters: innovators, early adopters, early majority, late majority, and laggards. Choudrie and Alfalah (2016) reported that aging adults are seen as both hesitant to use e-government and also lagging behind in the adoption of the services (Choudrie & Alfalah, 2016).

The current study found that many of the older adults fell into multiple categories of the DOI theory. Three of the 21 participants could be considered laggards because these participants did not use computers or did not like computers because they lacked computer training and interest. Conversely, a few participants could be considered adopters because they helped design and develop programming languages and technological advancements in the military or for the Department of Defense, which they continued to research to draw comparisons between new work and the work they

performed while employed. As such, these participants found technology very interesting.

Despite participants reporting interest in technology and e-government services, none of the participants could be categorized as innovators of technology. For the most part, many of the participants were laggards because although they used technology, they had specific reasons, such as research or to perform required actions like paying taxes or using the Department of Veterans Affairs website. Overall, the attitudes of the participants were either they did not like newer technology at all or they were willing to try it and would continue to use e-government.

Limitations of the Study

The limitations of this study were predicated on local government constraints, contemporary challenges regarding policies, and the transition of public services from traditional means to online services. A few participants for this study reported depending on family members and each other for assistance in learning how to use certain technologies. Although the local government offered information on the Stafford County portal in place of face-to-face services, some of the information was sparse. I contacted the local government and used the Stafford County portal for secondary data but retrieved little information.

Another limitation was that the participants in this study represented a small sample of older adult citizens, which limits the generalizability of the findings. Although the participants provided a great deal of information, the study has not exhausted all

perceptions of this demographic. This study was carried out in the spring/early fall when many older adults were on vacation or were otherwise occupied. Regardless of the researcher's efforts to be available during the day, many potential participants were not available for an interview. Furthermore, sampling was limited as Stafford County is predominantly Caucasian and African American. A larger demographic would provide a more diverse sampling population.

Implications

As previously discussed in the Interpretation of Findings section, and as expected based on previous research, this study found that older adults are laggards when adopting new innovations (Rogers, 1962; LaMorte, 2016; Zhang et al., 2015). This study showed that while the majority of participants used e-government services, there was a vocal minority who were not entirely satisfied with online services and preferred face-to-face or Skype. However, the participants were ecstatic to learn that this study conveyed their concerns on technological innovations. As such, the research gained insight from older adults as to their ability, willingness, and experiences regarding accessibility and use of e-government services. Using the DOI theory as the theoretical framework helped to better understand why older adults might lag in technology adoption. Although this research, and previous research, confirms that older adults are less likely to adopt newer technologies over younger adults, legislators and policymakers have done little with these findings. These findings do not seem to have impacted the work of legislators and policymakers.

Research indicates that the need to protect older adults extends beyond the existing policies in order to ensure that vulnerable adults are protected from abuse and neglect (Choudrie & Alfalah, 2016). Lawmakers instituted protections by law for minors to protect their online privacy, as explained by the Children's Online Privacy Protection Act (COPPA). What are the barriers preventing policymakers from developing policies to protect older adults from technological advancements that impact their livelihood? Although federal policymakers have developed programs such as the National Telecommunications and Information Administrations Broadband Technology Opportunities Program (Tsai, Shillar, Cotten, Winstead, & Yost, 2015) for advancing technology in rural areas, these policies do not do much for protecting older adults against pressures to use e-services (Kernaghan, 2015). Transitioning from traditional public service offerings to e-government is contributing to social injustice. Older adults are unable to participate in this movement. Transitioning from traditional public service offerings to e-government is contributing to social injustice. Older adults are unable to participate in this movement.

The more potential users have to engage with an innovation, the more likely the innovation is to be compatible with their lives; in addition, the easier it is for potential adopters to understand and navigate an innovation's complexities, the more likely they will be to accept and adopt the innovation (LaMorte, 2016). The adoption of online public service offerings by government entities to provide cost savings and agile public services is further contributing to unequal access. Compliance with mandates, such as the

E-government Act of 2002, has economic benefits for the government. The impact of implementing mandated policies without the input of citizens has a direct bearing on their way of life. Diffusion is the occurrence of steps taken to market an innovation to members of the social community over a period of time (Zhang et al., 2015).

As older generations age further, studies find that they are less likely to access technology, for reasons described earlier in this study. E-government is a complex solution to the requirement to provide online services to citizens, and it may be contributing to a more significant problem of unequal public service access for older adults. While the intention of e-government is to provide ongoing access to public services, this study found that some participants did not have equal access to these services as intended. Therefore e-government is an impediment to the public services that older adults are entitled to after retirement.

Policymakers in Stafford County must consider the importance of including older adults prior to implementing policies that may have an impact on citizens' access to government services. While not part of this study's scope, implications may include equal access issues for other populations not as skilled in technology or those in need of translation services. A social system, as described by Zhang et al. (2015), is the interrelationship between populations and groups as they work together to solve problems or meet common objectives. Within this current study, the aim was to find ways for older adults to be more fully integrated into a social system in which technology is widely used, through creating means for their improved adoption and acceptance of e-

government. In other words, I sought to understand how innovation such as e-government is diffused to the lagging older adult population and to present avenues for mitigating such lagging and improve older adults' use, experience, and adoption of this particular innovation. The skills barrier and lag in adapting to technological trends is often further compounded by older adults lacking the necessary access to technological infrastructure, devices, and internet connectivity (Van Volkom et al., 2014). Older adults also fail to adopt technology due to inaccessibility and lack of product awareness, and because they are intimidated by technology and find it difficult to understand (Van Volkom et al., 2014). The adoption of technology may further be influenced by socio-demographics (Niehaves & Plattfaut, 2014), ability or disability levels (Gustafson et al., 2015), or basic interest or disinterest in employing something new in one's life (Winstead et al., 2014; Wu et al., 2015).

Government policies are limited in consideration of public opinion as they pertain to modernizing government services and offerings through e-government. Furthermore, policymakers have not provisioned protections from technological advancements for vulnerable populations, specifically older adult citizens. The lack of citizen representation in certain areas, such as public service, means that changes are limiting older adults' choices while they remain unrepresented. The consequences of budget restrictions have challenged areas such as Stafford County public services. Many services that were once available for older adults—for example, technology classes and programs that provided hands-on training—no longer exist.

Currently, there is a paucity of research related to older adults and their ability to use and willingness to adopt e-government (Boban et al., 2014; Gonzalez-Zapata & Heeks, 2015). Even though they are users of public services, older adults are often not considered when introducing new technologies (Rodrigues et al., 2016). This lack of consideration for a large part of the service-receiving population can result in inadequate service delivery to this demographic or potentially exclude older adults from necessary services (Friemel, 2014; Kernaghan, 2015). These service issues, in turn, can have a negative effect on both social and governmental operations, and can lead to additional costs to government and to older adult citizens in order to bridge the technology-service access gap (Wu et al., 2015; Yusif et al., 2016).

Implications for Positive Social Change

Participant interviews demonstrated that older adults are observant and do understand the need for technological advancements. Thus, many older adults are using e-government to access public services and programs. However, this study also notes that although older adults are willing to use e-government, they often do not have the necessary skills to do so. They depend on family members or one another to learn how to use these advancements. One participant noted their preference to have someone assist them in order to avoid the process altogether. Another participant found some of the online services difficult to use. With the continuous advancements of government modernization and the transition to online services, I believe that this research is timely for lawmakers and government officials both at the local and federal level, who can

support organizations in taking care of older adults by implementing more programs such as STEM and allocate funding for counties and cities with current programs. Moreover, educators and volunteers have an opportunity to support their local areas by offering classes on advancing technologies to older adults. Collaborative efforts are needed to support our growing older adult population as they continue to age and live longer.

Recommendations for Future Research

This study was an exploratory qualitative study, which raised a number of opportunities. More research is needed to understand how the effects of technological advancements are affecting older adults' daily lives. There is a dearth of research regarding how e-government policies affect (through improving or excluding) older adults' use, experience, and willingness to adopt the technology (Bloom et al., 2015; Gupta et al., 2016; Molnár et al., 2017; Rahmawati et al., 2017). Thus, the current suggested alternatives and policies would need to be studied in more depth to ascertain their value to older adults.

A further recommendation is related to the methodology used in the study. Although this study reached its goal of answering research questions based on the participant feedback using qualitative methodology, a mixed method study has the potential to provide the statistical data needed to show differences in use of e-government usage based on gender, background, and ages, among other demographics. By implementing a mixed method study, additional data could be analyzed relating to older adults' use of e-government and its associated services.

While the number of participants in this study provided a vast amount of information to saturation, this number significantly underrepresents the number of older adults living in the United States. Further research should consider interviewing a larger sample of older adults in order to represent a majority. Additionally, it is recommended that future research does not limit the scope to small geographical areas. Although Stafford County has a substantial population of older citizens, a few of them lived outside city limits, which disqualified them. As such, researchers should consider larger urban areas for better sampling.

As for lawmakers and policymakers, it is recommended that as more information is discovered on this topic, they should pinpoint solutions that would alleviate stress on local counties or governments through offering satellite locations or different provisions for login options for older adults. Finally, this study could be extended to follow participants over a period of time to analyze more in-depth effects of transitioning programs. This type of information could be used in future case studies for organizations that support older adults living. There are future research options to consider, including policies around technological advancements that contribute to social disparities among older adults.

Conclusion

Technology continues to become more prevalent and expected in everyday activities, but older adult citizens' technology usage remains below that of the general population. The U.S. Census Bureau recently reported that 15% of the U.S. population is

age 65 years and older, which translates to over 46 million older adults (U.S.Census.gov, 2017). This number is expected to grow by 7% by the year 2050 (U.S. Census.gov, 2017). With the advancements of technological advancements, researchers from the Pew Reacher Center found that the use of technology has increased among older adults (Anderson & Perrin, 2017). In fact, recent studies reported that broadband services have improved as many older adults are using smart devices as represented in Figure 6 (Anderson & Perrin, 2017).

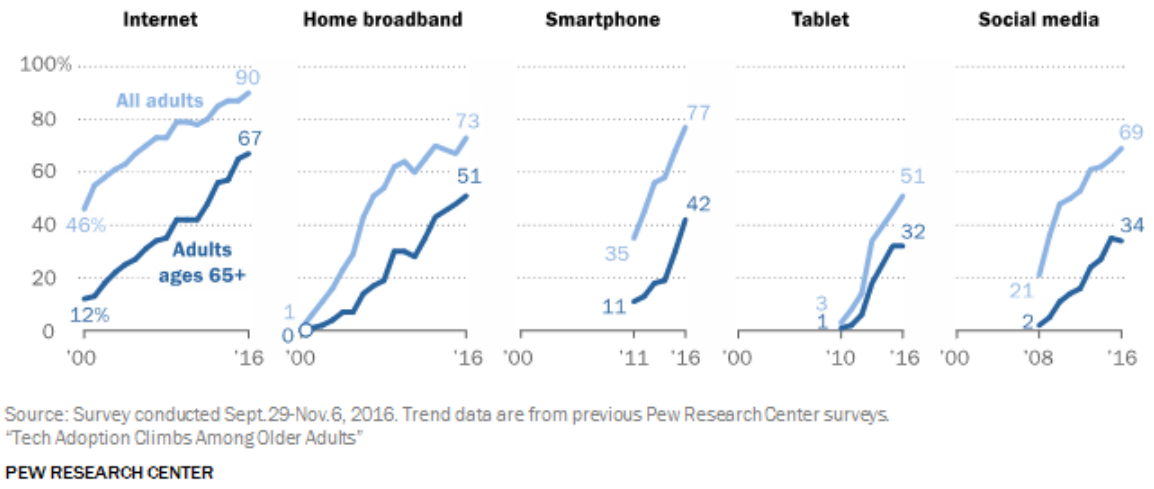


Figure 6. Line graph showing Smartphone adoption among older adults. (Anderson & Perrin, 2017).

Consequently, although reports show an increase in technology use by older adults aged 65 years and older, researchers argue that broadband use remains an issue, as

some areas within the U.S. do not have the infrastructure or adequate speeds for sufficient internet use (Anderson & Perrin, 2017; ACLU, 2018). On the other hand, some researchers discredit the use of smartphones as emerging technology (ACLU, 2018). While the current study found that a number of older adults are using technology to access e-government, other studies find a significant number of older adults who do not have access to the internet and therefore cannot access public services such as e-government (Anderson & Perrin, 2017; ACLU, 2018; Hiltlin, 2018). The Pew Research Center stated that nearly 30% of older adults have not utilized the internet for various reasons (Hiltlin, 2018). Figure 7 represents the use of the Internet by adults 75 years and older.

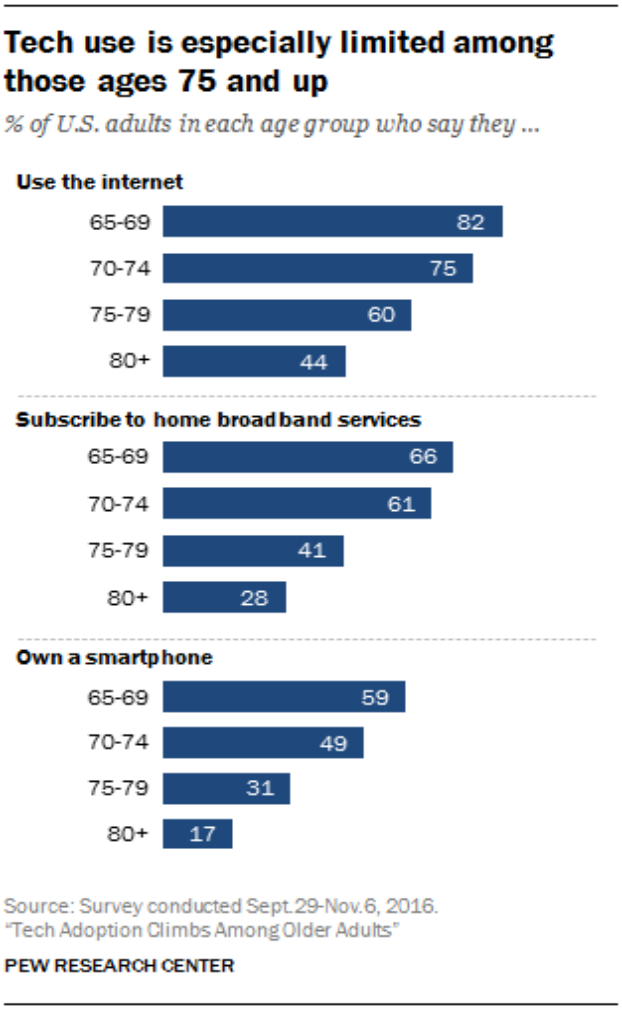


Figure 7. Bar graph showing technology use among those ages 75 and up. (Anderson and Perrin, 2017).

Technological transitions from traditional means of customer service and offerings to e-government has limited the inclusion of older generations. As policymakers encourage efficiency and anytime access to public services, local county programs struggle with implementing services that are suitable for residents. Furthermore, government budgets are decreasing as demands to save money are increasing; as such,

public programs are forced to transition to online services to improve public services and provide cost savings.

Local government, in support of their residents, has a responsibility to develop policies supporting aging adults as well as assist them in navigating technology innovations (Khanh, 2014). While society continues to depend on technology, and the government transitions to more elaborate digital platforms service offerings, leveraging and considering the older generation's knowledge and needs may help provide a framework for accessible e-government structures.

This study suggests that public policy initiatives should include older adults when considering societal issues such as technological burdens. Although the shaping of policy may be influenced by academia and advocates, the general course of action must be undertaken by government entities with decision-making powers for a true change. As the older generation continues to age and retire, additional public services are needed to support this population. Furthermore, older adults are living longer, which has led to strain on current and previously planned social structures (Christiansen et al., 2016; Price, 2015).

Overall, this study finds that participants worry about their inability to keep up with technology as it advances. Many of the participants depend on the government to offer training on advancements such as e-government services and new technology at no cost to older adults. Figure 8 represents the percentages of older adults who need help with technology (Anderson & Perrin, 2017). Other research has also found that older

adults reported similar concerns as the participants in the current study (Anderson & Perrin, 2017).

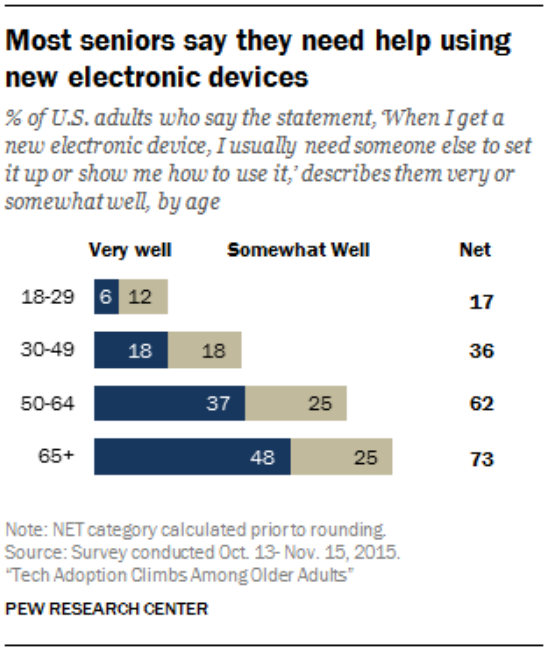


Figure 8. Bar graph showing older adults' need for help in using new electronic devices. (Anderson & Perrin, 2017).

The participants of this study encouraged researchers to continue with their studies in this area, as the study gave them hope that they are not forgotten and that their opinions are valued. As society continues to advance with the use of technology, older adults must be provided the opportunity to have the capability to advance with it. More specifically, I recommend that local county older adults center's facilitate working groups made up of volunteer information technology professionals, and local government professionals to provide information to older adults on technological advancements and mandated government policies supporting technology (e.g., e-government). Collaboration

forums between the older adults and professionals has a potential to develop and implement viable solutions.

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Appendix A: Survey Questionnaire

Introduction to the study:

This study is to understand factors influencing older adults's acceptance and usage of e-government. Moreover, what is the older adults's satisfaction with e-government over traditional means.

Instructions on how to complete the questionnaire survey:

Please answer the questions honestly and independently. Your answers are confidential and will remain confidential. Participation is strictly on a volunteer basis which means that you can quit the study at any time.

The survey questions will be asked in an interview setting and will take approximately 15 to 20 minutes to answer. If you prefer to write your answers instead of verbally responding, please let the facilitator know.

Thank you for your participation in this study.

Demographic Questionnaire, Part 1

Gender
Male
Female
Not Answered
Age
65 – 74
75 – 84
Older than 84
Education
High school diploma
G.E.D
Bachelor
Master
PhD
Other (trade)
Limited Education

Survey Questionnaire, Part 2

A. Variation of Usage

I prefer e-government services over face to face services

I prefer to speak to someone about government services in person

Access to government services is important to me

I believe using e-government websites allows me to access more government services

I have transportation available to visit Government offices

Overall, I find e-government websites useful for me

I find it easy to use e-government portals to find what I want

I believe using e-government web sites enables me to access government services more quickly

B. Awareness of e-government

I know that e-government services exist

I was informed about e-government services

I believe e-government offers the same services as visiting the office

C. Perception of e-government

I trust in e-government services

I perceive e-government as useful

D. Prior Experience of using e-government

I have used e-government services in the past

I do not have prior experience using e-government

I tried to use e-government in the past

E. Intentions to use e-government

I am willing to use e-government services (i.e., Stafford County Portal, Internal Revenue Service (IRS), e-health services)

I intend to use e-government websites continuously

I plan to use e-government websites in the future

I don't plan to use e-government websites in the future

F. Skills to use e-government

I have a computer and internet access

I do not have my own computer or internet access

I have the necessary skills to access e-government services

I have the necessary skills to use e-government services

I am able to locate and use the Stafford County portal

Learning to use the Stafford County website to access the portal was easy for me

Overall, I find using e-government to access services easy to use

I understand e-government

I do not have the skills necessary to use e-government

Appendix B: Flyer

Volunteers Needed

I am looking for volunteers to participate in my research study.

What is this study about? - This study is to understand factors influencing older adult's acceptance and usage of e-government. Moreover, what is the older adult's satisfaction with e-government over traditional means.

Who should volunteer? Male or Female, 65 years or older, living in Stafford County, VA.

How do I sign up? If you are interested in volunteering for this research study simply call and leave a message [redacted] - OR - Email – [redacted]and include the following information: Your Name

Contact Information

Space is limited and based on a first come first served. A small incentive will be provided for participating.