Spring 3-5-2024

# Effectiveness of Technology Access and Use to Mitigate Social Isolation of Seniors in Monterey County, CA

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March 5, 2024

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## Abstract

The Centers for Disease Control identifies isolation and loneliness as severe public health risks that affect older adults and increase their risk of chronic health conditions (Loneliness and Social Isolation Linked to Serious Health Conditions, 2021). In Monterey County, 39% of seniors experienced isolation or loneliness in the past year (Polco, 2023).

This mixed-methods research study explores the impact of technology use on mitigating loneliness, enhancing information access, and stimulating mental activity among seniors (O'Sullivan et al., 2017). With survey data from 95 seniors and ten 1-on-1 interviews, findings show positive effects on social well-being (85%) and a high likelihood of recommending technology to others (96%). Challenges like poor internet connectivity were reported by 24% of respondents. Recommendations include addressing connectivity issues, enhancing data literacy and cybersecurity awareness training, and providing technical support. Effectively implementing and using technology can significantly reduce social isolation and improve overall well-being among seniors, urging further research to address connectivity issues. The results could inform decision-makers on prioritizing funding for the aging population and combating isolation and loneliness.


*Keywords:* Older Adults / Seniors, Digital Connections Program, iPad, Technology, Mitigate, Social Isolation, California Department of Aging (CDA), and Monterey County Area Agency on Aging (AAA)

# Chapter I: Introduction

## Background

The Centers for Disease Control describes isolation and loneliness as severe public health risks and can affect older adults and increase their risk of dementia, other chronic health conditions, and death. Isolation and loneliness can increase the chance of premature death, which rivals obesity and smoking. For the older population who are 60 years and over, feelings of loneliness impact their physical and mental health, which can lead to cognitive decline and dementia, and vulnerable to elder abuse (Loneliness and Social Isolation Linked to Serious Health Conditions, 2021).

Due to the COVID-19 pandemic, many older adults were completely cut off from connecting with others and found themselves socially isolated and lagging in accessing and using technology. As such, the pandemic brought attention to the importance of bridging the digital divide. To provide access to technology and the internet and close the technology gap for older adults, Executive Order (EO) N-73-20 was issued by Governor Newsom on August 14, 2020. The EO specified that older adults are considered a priority population prone to and at risk of social isolation and loneliness due to impacts caused by the digital divide. As a result of the EO, the California Department of Aging (CDA) worked with local Area Agencies on Aging (AAA) throughout the state to implement a Connections, Health, Aging, and Technology (CHAT) pilot program to respond to the pandemic's impact on social isolation, loneliness and the wellbeing of older adults as well as bridge the digital divide. This effort helped to distribute over 8,000 electronic devices to older adults across the state (Laohavanich, 2023). The success of the CHAT pilot program helped CDA, and AAAs better understand how best to serve older adults to address the digital divide. As such, CDA developed a digital inclusion initiative called Digital Connections in partnership with local AAAs to provide older adults with a new iPad device with internet connectivity combined with computer digital literacy training. The Digital Connections

Program aims to improve the quality of life for older adults, enable them to connect and engage with others in their community, and access resources to live a more dynamic life that mitigates social isolation and loneliness (Laohavanich, 2023).

In addition to the COVID-19 pandemic, changes in the aging population have brought awareness and interest in loneliness and social isolation impacting older adults. With Monterey County's aging population reaching 22% in 2023 and 17% geographically isolated and living alone, according to CDA's population projections, there is an increasing effort to reduce isolation and bridge the digital divide amongst the older population (CDA Population Demographic Projections by County and Planning and Service Area for Intrastate Funding Formula, 2023).

**Statement of the Problem**

The goal of this study was to explore if the use of technology made a difference in mitigating older adults' loneliness and social isolation. Further research needed to be done to determine any concerns or deficiencies regarding older adults' use of technology to connect with others, stay informed about current events and healthcare information, and stimulate their minds. Therefore, to ensure the use of technology was effective, connections with others improved, information about current events and healthcare helped to keep them educated about their health and well-being, and their minds were stimulated and mentally active.

**Purpose of the Study**

The purpose of this study was to provide data and statistics on isolation and loneliness affecting older adults, utilizing a survey/questionnaire and individualized interview questions. The data and analysis could raise awareness, provide a clear picture of the issues, causes, and consequences, and use the information to identify and develop targeted strategies and programs and prioritize funding and resources that would benefit the aging population that addresses isolation and loneliness.

**Significance of the Study**

The significance of this study was important to the field of public administration because it helped with the development and execution of policies that address isolation and loneliness among older adults. Also, since Older Americans Act funding is limited, this study could help to identify where to prioritize Digital Connections Program funding and resources that had the most significant impact on stakeholders responsible for implementing effective digital inclusion strategies and programs.

Further, to better understand the needs, strengths, and challenges of the older population in Monterey County, data was taken from a recent community survey conducted by Polco for the AAA in November 2023 that focuses on their quality of life in their community and challenges they have faced over the last 12 months (Polco, 2023). Of the number of challenges older adults faced over the previous 12 months, 39% reported feeling lonely or isolated; 42% reported feeling depressed, 44% reported feeling bored, 42% are dealing with the loss of a close family member or friend, 38% do not get the vision care they need; 42% are dealing with confusion or forgetfulness; 44% feel depressed; 44% feel bored; 40% do not have friends or family to rely on; 36% feel like they don't fit in or belong; and 42% do not have any productive or meaningful activities to do (Polco, 2023).

These statistics proved the importance of conducting this study. As such, the results from the research proved to be valid and proved that the use of technology made a difference in mitigating older adults' loneliness and social isolation and helped to prioritize future funding and resources that would benefit the aging population that addresses isolation and loneliness.

## Main Research Question and Sub-Questions

The main research question is:

How can the use of technology for seniors in Monterey County effectively reduce loneliness and social isolation among the older population?

The sub-questions are:

**Q1:** Will the use of technology help older adults to mitigate loneliness and social isolation?

**Q2:** Will technology help older adults stay informed about current events and healthcare information to educate them about their health and well-being?

**Q3:** How can technology help seniors stimulate their minds and keep them mentally active?

## Theory of Change and Assumptions

The theory of change for this research study is: If loneliness and social isolation are mitigated, if staying informed of current events and information is feasible if stimulating minds and keeping them active is possible, then seniors will have a better quality of life and well-being.

Based on the theory of change presented, the following assumptions are made:

If seniors use technology:

**Assumption 1 (A1):** Then, it would mitigate loneliness and social isolation.

**Assumption 2 (A2):** Then, it would help them to stay informed about current events, information, and their health and well-being.

**Assumption 3 (A3):** Then, it would help stimulate their minds and keep them mentally active.

## Limitations

The limitations of this study involved insufficient sample size and selection for the research if not enough iPads were distributed. If the sample size was small, it could limit, generalize, and skew the results and findings. The target population for the survey/questionnaire was 100 older adults 60 years or older or adults 18 years or older with a disability who received a

free iPad in Monterey County from the AAA as part of the Digital Connections Program. I planned to use hardcopy surveys/questionnaires and an online tool using Microsoft 365 Forms to capture the responses due to time constraints, limited funding, and limited resources. I also planned to use Microsoft Excel to compile and analyze the data.

**Operational Definitions**

In this study, the following operational definitions were established to offer a clearer understanding of the terms used.

- **Older Adults / Seniors:** The term "older adult" and "senior" refers to and may be used interchangeably to refer to individuals 60 years and older.
- **Digital Connections Program:** This program is funded by the Older Adults Recovery and Resilience Fund - Home and Community-Based Services and was developed by the California Department of Aging to help bridge the digital divide for older adults by making available digital devices (iPads), broadband internet connectivity plans, and in-person and virtual basic literacy skills training.
- **iPad:** To be eligible to receive an iPad, older adults must meet these minimum qualifications: reside in Monterey County; be 60 years of age or older or 18 years of age or older with a disability; not currently own an iPad or similar device; and agree to the Digital Connections Program terms and conditions which restrict individuals from selling or transferring the iPad to another party, ensuring it is maintained in good condition, and understanding that the iPad is being loaned to them until they no longer need it. Once the individual decides they no longer need it, the device gets returned to the local AAA to be cleared, reset, and redistributed to another individual to use and benefit. For purposes of this study, all iPad recipients will receive in-person and hands-on digital literacy training that will include how to use and navigate around their iPad, use the available applications, configure and access the

internet, use the internet browser to search and access information, communicate with others remotely, play games to keep their minds active, etc.

- **Technology:** The term "technology" refers to the Apple iPad.
- **Mitigate:** The term means to make something less severe or intense by taking action to reduce the negative impact.
- **Social Isolation:** The term refers to a situation when older adults have limited contact, engagement, and connection with others. This can result from various factors, including physical and geographical barriers.
- **California Department of Aging (CDA):** This agency is under the California Health and Human Services Agency and administers programs that serve older adults (60 years and older), adults (18 years and older) with disabilities, family caregivers, and residents in long-term care facilities. CDA's programs are primarily funded by the federal Older Americans Act, Older Californians Act, and Medi-Cal program. Also, CDA contracts with a network of 33 AAA's.
- **Monterey County Area Agency on Aging (AAA):** This agency is designated as the Planning and Service Area #32 (PSA 32) in the State of California. The AAA is overseen by Monterey County's Department of Social Services staff, who are responsible for the planning, coordination, implementation, monitoring, and funding of programs and services for older persons, adults with disabilities, and family caregivers.

**Expected Impact of the Research**

Since the Digital Connections Program was a statewide effort supported by other AAAs, it had great potential to identify and provide data and statistics on isolation and loneliness affecting older adults. The survey data could raise awareness, provide a clear picture of the issues, causes, and consequences, and use the information to identify and develop targeted strategies and programs and prioritize funding and resources that will benefit the aging

population that addresses isolation and loneliness using technology. Since this study was conducted for Monterey County, other AAAs could use the results and apply them to their respective areas across the state.

**Summary**

As previously explained, the Centers for Disease Control identifies isolation and loneliness as severe public health risks for older adults with potential links to chronic conditions, dementia, and premature death (Loneliness and Social Isolation Linked to Serious Health Conditions, 2021). The pandemic intensified social isolation among older adults, prompting the CDA to implement the Digital Connections Program to provide seniors access to technology to improve their quality of life. This study aimed to explore the effectiveness of technology in mitigating isolation and loneliness affecting Monterey County's aging population.

# Chapter II: Literature Review

## Introduction

For this study, extensive research was conducted online for peer-reviewed literature reviews, journals, articles, studies, and surveys published on three themes of using technology to help seniors mitigate loneliness and social isolation, stay informed about current events and healthcare information to keep them educated about their health and wellbeing; and stimulate their minds and keep them mentally active. As such, the research gathered over fifteen sources that supported the major themes of the study while also recognizing instances of skepticism and potential challenges associated with the adoption of technology by older adults. Below is a summary of the research surrounding the key themes of this study.

## Theme 1: The use of technology will help seniors to mitigate loneliness and social isolation.

While conducting a comprehensive literature search, I came across several studies that align with my assumption for theme 1. For example, a study on the impact of technology on older adults' social isolation aligns with my assumption because it emphasizes that loneliness and social isolation have negative consequences on older people's health and well-being. Although the study recognized that research is scarce, it explained how technology-related interventions helped reduce social isolation (Khosravi et al., 2016). This study utilized empirical studies and supported eight types of technologies, their uses, and their effectiveness in mitigating social isolation and loneliness among older adults. The technologies used to evaluate social isolation among older adults included video games, social systems, chat rooms, social network sites, and other systems (Khosravi et al., 2016).

Coelho and Duarte (2016) found that 'older adults' used social network services and applications to reduce social isolation (mental and physical), which aligned with my research topic. Their study recognized that social technologies encouraged people to actively engage with others (Coelho & Duarte, 2016). This study included a survey of social applications used by the

older population and how improvements could be made to consider the needs and characteristics of seniors. For example, it revealed a few critical areas to seniors, including privacy controls, user interface, interactive solutions, culturally relevant designs, and others (Coelho & Duarte, 2016).

A systematic literature review aligned with my assumption because it addressed the severe effects of loneliness and social isolation and solutions revealed by the information and communication technology (ICT) field (Latikka et al., 2021). This study shared research on older adults and their use of ICTs, robotic pets, wearable devices, smart homes, and other technologies. Data was collected from databases with data sets that included 23 empirical studies. The study and use of ICT solutions revealed that smart homes could predict and detect people affected by social isolation and loneliness (Latikka et al., 2021).

Another study about technological interventions to reduce loneliness and social isolation aligned with my assumption because it addressed how social isolation is a challenge among older adults and how technology interventions are being used to address the challenges (Wister et al., 2021). This study reviewed technological interventions used to address loneliness and social isolation for older adults. The review identified 26 approaches that met the criteria, including computer and device training, health interventions, video games and robotic pets, and other technology-driven interventions (Wister et al., 2021).

A study on the effects of technology aligned with my assumption because it emphasized how older people risk loneliness and isolation due to mobility issues, loss of partners and friends, loss of connection with others, health concerns, and other reasons. It further explained that due to the pandemic, people have had to connect with others in nontraditional ways, such as video conferencing (Saunders et al., 2020). This study identified technology strategies that delivered services to older adults virtually using seven databases. The preliminary results indicated that technology could mitigate social isolation. The study's findings also helped shape policies that

helped older adults alleviate loneliness and social isolation due to the pandemic (Saunders et al., 2020).

**Theme 2: The use of technology will help seniors stay informed about current events and healthcare information to keep them educated about their health and well-being.**

While conducting a comprehensive literature search, I found several studies that aligned with my assumption for theme two. For example, a study on media patterns and leisure time among older adults aligned with my assumption because it emphasized how the use of technology is growing and becoming part of the aging population's daily life (Dal Cin et al., 2023). This study used time data from households to identify media and non-media activity patterns among the older population. The data identified three user types: computer socializers, hobbyists, and TV watchers. Further, the study explored the type of users, their patterns, and how they correlated to their demographics and well-being (Dal Cin et al., 2023).

A research study on assessing older adults' perspectives on digital games and strategies aligned with my assumption because it emphasized how the use of technology and digital platforms increased challenges to the development and design process to accommodate the needs of the older population better (Regalado et al., 2023). This research shared that technology is growing and creating new opportunities to encourage active and healthy aging for older adults. The study examined digital gaming sessions over two months, where individuals were shown how to use and access online communities to communicate with others. By encouraging participation, people could gain data literacy competencies and maintain their health and well-being (Regalado et al., 2023).

A study on using technology to improve care for older adults aligned with my assumption because it discussed multiple technological developments for older adults that provided evidence-based knowledge related to advanced care and the well-being of seniors (Chau & Osborne, 2018). This research discussed technological developments offered in rural areas that

featured telehealth, assistive technology, and other devices, their challenges, successes, and failures, and opportunities for transforming the aging population using technology (Chau & Osborne, 2018).

A smartphone study aligned with my assumption because it addressed the effectiveness of home-based rehabilitation technology-related programs and training offered to older adults through smartphone devices (Lugade et al., 2023). This study involved a random sample of people over twelve 30-minute sessions. It involved walking exercises and reported on the length of exercise programs, enjoyment, difficulty, usability, and other areas (Lugade et al., 2023).

This study of older adults who use the internet aligned with my assumption and highlighted Italy because it has the highest percentage of older adults who are 60 and older. The study explored their concerns about living in a digitized world and how they used technology to participate socially and maintain independence (Pantelaki et al., 2023). This study explored the use of technology and the internet by Italian older adults and their online activities. The study further analyzed the personal and sociodemographics and how being female, widowed, low income, poor education or poorly educated, and other characteristics predicted fewer people doing online activities (Pantelaki et al., 2023).

In examining the literature reviews relevant to theme two, which emphasize the positive influence of technology, it is important to present a more balanced view by addressing skepticism regarding the lack of internet connectivity. For instance, a study revealed a substantial digital gap faced by older adults who reside in rural areas. It identified disparities in internet access, lower usage patterns, and unfavorable perceptions of technology use. More specifically, the study revealed that 29% of those residing in rural areas use less communication, health, media, and finance technology. Also, they were more likely to report technology as being too complicated, hard to learn and keep up with changes (Lee et al., 2020).

**Theme 3: The use of technology will help seniors to stimulate their minds and keep them mentally active.**

While conducting a comprehensive literature search, I found several studies that aligned with my assumption for theme three. For example, a study on older adults ' use of technology aligned with my assumption. It examined the adoption of technology for older adults and how it eased their learning perspective using table devices that are handheld and touch screen (Barnard et al., 2013). This study examined participants and whether their use of digital technologies was successful when they are supported through facilitation and training by others through user groups and step-by-step guidance vs. those that do not receive any guidance and what the potential errors are and how to help seniors avoid them (Barnard et al., 2013).

Another study of older adults learning and using technology aligned with my assumption. It investigated how using the internet, social media, and mobile devices enhanced older adults' online and personal learning (Morrison & Koole, 2018). This study used a mixed-methods research approach, using an online survey distributed to retired adults over 55. The results showed that mobile device use supported and empowered older adults' learning (Morrison & Koole, 2018).

Another study aligned with my assumption and examined technology adoption for older adults and how it influenced their daily lives, social influence, behavior, etc. (Lai, 2020). This study examined a survey of 238 older adults, suggesting that social influence, facilitation conditions, and performance influenced their mobile device learning tools and activities (Lai, 2020).

Further, another study of immersive virtual technologies to promote exercise aligned with my assumption and examined the use of virtual technology that promoted and encouraged physical exercise among older adults. (Doré et al., 2023). This study performed a literature

review of databases of participants 60 years and older, their experience using technology, and whether or not it was effective in promoting exercise amongst older adults (Doré et al., 2023).

A study that addressed technology solutions for the elderly aligned with my assumption and used monitoring technology to measure daily living, activities, and mobility. (Bouaziz et al., 2022). This study examined activities, daily living habits, and risk levels of social isolation. (Bouaziz et al., 2022).

While the literature reviews I've identified for theme three highlight the positive impact of technology, it is essential to provide a balanced perspective by acknowledging reservations about older adults facing challenges in adapting to new technologies. For instance, a study revealed that older adults struggled with QR codes and smartphone applications to order food in restaurants and felt uncomfortable with contactless payment transactions. The reasons for their difficult experiences included their lack of knowledge of how to use the devices or technology, poor quality Wi-Fi connectivity, and lack of cybersecurity awareness (Morrison et al., 2023).

**Summary**

While conducting the comprehensive literature search, I found studies aligned with my assumptions for the three key themes. Overall, the research emphasized that loneliness and social isolation negatively affect older people's health and well-being and how technology-related interventions can help reduce social isolation, leading to a healthier and more active lifestyle and well-being. Examples shared included using interactive solutions such as video games, social systems, chat rooms, social network sites, smartphones, and smart homes. Further, it revealed that computer devices and digital literacy training helped older adults adopt technology more effectively, influencing their daily lives, social influence, and behavior. Encouraging participation made people more likely to gain data literacy competencies, communicate online, participate socially, and participate in physical exercise to maintain their independence, health, and well-being. While positive aspects were highlighted, the research also acknowledged

reservations, including challenges faced by older adults in dealing with technological issues such as poor Wi-Fi connectivity, a lack of familiarity with technology, concerns about cybersecurity awareness, and difficulties adapting to innovations like using QR codes and engaging in contactless payment transactions.

# Chapter III: Research Methods

## Introduction

This study has collected quantitative and qualitative data using a mixed-methods research approach. For the quantitative data, a survey/questionnaire was provided to 100 older adults 60 years or older or adults 18 years or older with a disability who received a free iPad in Monterey County from the AAA as part of the Digital Connections Program. For the qualitative data, open-ended interview questions were given during 1-on-1 interviews with ten older adults (60 years or older) or adults 18 years or older with a disability who also received a free iPad as part of the AAA Digital Connections Program.

## Main Research Question and Sub-Questions

The main research question is: How can the use of technology for seniors in Monterey County effectively reduce loneliness and social isolation among the older population?

In addition to the main research question, the sub-questions are:

Q1: Will the use of technology help older adults to mitigate loneliness and social isolation?

Q2: Will technology help older adults stay informed about current events and healthcare information to educate them about their health and well-being?

Q3: How can technology help seniors stimulate their minds and keep them mentally active?

## Theory of Change and Assumptions

The theory of change for this research study is: If loneliness and social isolation are mitigated, if staying informed of current events and information is feasible, if stimulating minds and keeping them active is possible, then seniors will have a better quality of life and well-being.

Based on the theory of change presented, the following assumptions are made:

If seniors use technology:

**Assumption 1 (A1):** Then, it would mitigate loneliness and social isolation.

**Assumption 2 (A2):** Then, it would help them to stay informed about current events, information, and their health and well-being.

**Assumption 3 (A3):** Then, it would help stimulate their minds and keep them mentally active.

**Operational Definitions**

In this study, the following operational definitions were established to offer a clearer understanding of the terms used.

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- **iPad:** To be eligible to receive an iPad, older adults must meet these minimum qualifications: reside in Monterey County; be 60 years of age or older or 18 years of age or older with a disability; not currently own an iPad or similar device; and agree to the Digital Connections Program terms and conditions which restrict individuals from selling or transferring the iPad to another party, ensuring it is maintained in good condition, and understanding that the iPad is being loaned to them until they no longer need it. Once the individual decides they no longer need it, the device gets returned to the local AAA to be cleared, reset, and redistributed to another individual to use and benefit. For purposes of this study, all iPad recipients will receive in-person and hands-on digital literacy training that will include how to use and navigate around their iPad, use the available applications, configure and access the internet, use the internet browser to search and access information, communicate with others remotely, play games to keep their minds active, etc.

- **Technology:** The term "technology" refers to the Apple iPad.
- **Mitigate:** The term means to make something less severe or intense by taking action to reduce the negative impact.
- **Social Isolation:** The term refers to a situation when older adults have limited contact, engagement, and connection with others. This can result from various factors, including physical and geographical barriers.
- **California Department of Aging (CDA):** This agency is under the California Health and Human Services Agency and administers programs that serve older adults (60 years and older), adults (18 years and older) with disabilities, family caregivers, and residents in long-term care facilities. CDA's programs are primarily funded by the federal Older Americans Act, Older Californians Act, and Medi-Cal program. Also, CDA contracts with a network of 33 AAA's.
- **Monterey County Area Agency on Aging (AAA):** This agency is designated as the Planning and Service Area #32 (PSA 32) in the State of California. The AAA is overseen by Monterey County's Department of Social Services staff, who are responsible for the planning, coordination, implementation, monitoring, and funding of programs and services for older persons, adults with disabilities, and family caregivers.

**Population Sampling Strategy**

To conduct the survey effectively and accurately, contact data was gathered from individuals who received an iPad under the Digital Connections Program to create the population sampling. The sampling for the quantitative data collection was random and included 100 older adults 60 years or older or adults 18 years or older with a disability. The sampling list was sorted by zipcode. Higher weights were assigned to zipcodes with larger populations. The population sampling for the qualitative interviews included a systematic sampling of ten people. For

example, these individuals were selected from the entire list of iPad recipients. The list was alphabetized, and every 10th individual was selected to create the population sample.

**Procedures**

The data-gathering approach used for this study was a mixed methodology consisting of qualitative and quantitative research methods. My qualitative research used phone or in-person 1-on-1 interviews with seniors utilizing a questionnaire to collect descriptive feedback. These interviews were conducted over one week.

My quantitative research involved a standardized instrument such as a hardcopy and online survey to gather numerical data using a survey tool incorporating a cross-sectional design to collect quantitative data on multiple variables such as the demographics of the survey respondents, where they live geographically, and how they are using and benefiting from using technology. The survey tool was made available in English and Spanish. The data collection was conducted over one week.

Data came from survey results and interviews with individuals who received a free Apple iPad and training. A recording device was used to transcribe the data into written text to collect the qualitative data. The quantitative data was compiled into Microsoft Excel from the manual survey and online Microsoft 365 Forms.

**Data Processing and Analysis**

The questionnaire and survey tools used to interview individuals were processed and analyzed for quantitative and qualitative data to answer the main research question of whether using technology mitigates loneliness and social isolation amongst seniors and, if so, how. Hardcopy questionnaires and online surveys were used and analyzed for quantitative data to answer questions. Phone or in-person interviews were conducted to answer questions. The questions were open-ended and encouraged individuals to express their thoughts and experiences using the Apple iPad.

After collecting the data, the information was organized and condensed by integrating the aggregated data into themes, trends, and reoccurring patterns to determine if the responses confirmed or validated the research assumptions. Subsequently, graphical charts were generated to present the data and information as part of this final report.

**Internal and External Validity**

The study's internal validity was measured utilizing the assumptions outlined in the theory of change. The restricted scope of the research population could threaten internal validity due to selection bias if not enough iPads are distributed or used to meet the sample size for the study. Another confounding factor that could undermine internal validity is that iPad recipients lose, break, or give away their devices. Other factors that could have impacted the study include the time the seniors had to use the iPad from the date they originally received it. In other words, the respondents would need more time to use the iPad to its full potential. On a grander scale, this study could garner considerable external validity if used by other AAAs throughout the state. It could positively impact seniors' quality of life and well-being if used and applied successfully across the state.

**Limitations**

The study's limitations were primarily associated with the restricted scope of the research population causing an insufficient sample size, if not enough iPads are distributed. For example, if the sample size was small, it can limit, generalize, and skew the results and findings.

**Summary**

In conclusion, for this study, qualitative and quantitative were collected using a mixed-methods research approach using surveys and questionnaires provided to 100 seniors who received an iPad as part of the Digital Connections Program and 1-on-1 interviews were conducted with ten seniors. Overall, I anticipated the internal validity of this study to be high. On a grander scale, I expected the study will garner considerable external validity if used by other AAAs throughout the state. It could positively impact seniors' quality of life and well-being if used and applied successfully across the state.

# Chapter IV: Results and Findings

## Introduction

This study focused on the effectiveness of using technology to help seniors in Monterey County, California, mitigate loneliness and social isolation, stay informed about current events and healthcare information to keep them educated about their health and well-being, stimulate their minds, and keep them mentally active. The research included a mixed-methods research (MMR) approach of quantitative and qualitative data collection and analysis. The quantitative research involved emailing an electronic survey via Microsoft 365 Forms to 100 individuals with a consent disclaimer to collect numerical data on multiple variables such as demographics and a Likert rating scale on how they use and benefit from technology. In total, 95 quantitative survey responses were received from seniors ranging in age from 60 to 90 years old.

The qualitative research involved one-on-one phone interviews with ten seniors utilizing a questionnaire to collect data on their technology experiences. The in-depth interviews were designed to gather information from iPad users on how the device helped them feel connected with others, prevented feelings of loneliness or isolation, and stayed informed about current events and news. Additionally, the interviews aimed to explore how the iPad impacted their ability to make informed decisions about their well-being, stimulated their mind, kept them mentally active, and whether they would recommend the use of technology to seniors based on their experiences. The data collection for both methodologies was conducted over two weeks. Below is the thorough analysis of the quantitative and qualitative data compiled for the study.

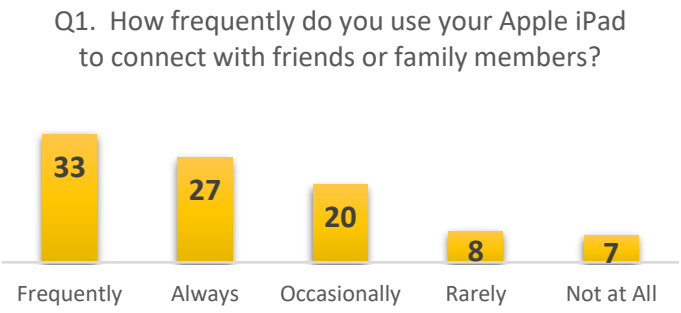
**Assumption 1 (A1):**

If seniors use technology, then, it will mitigate loneliness and social isolation.

**Quantitative Results**

To validate assumption one, the survey questionnaire included five questions (1, 4, 5, 11 & 12) addressing whether the use of technology would mitigate loneliness and social isolation. Overwhelmingly, the survey results show that older adults find technology beneficial for connections and isolation. As shown in Figure 1, among the 95 survey respondents, 33 frequently and 27 always use their iPads to connect with friends or family members. This finding suggests that a substantial proportion of older adults rely on iPads to communicate with others regularly and interact socially. Additionally, another 20 respondents reported occasionally using their iPads for specific situations or instances. Conversely, eight respondents indicated they rarely use their iPads for connecting with others, and surprisingly, seven shared that they do not use their iPads at all for connecting with others, which shows the device is not their preferred means of communication to interact with others socially. The data aligns with the Coelho and Duarte (2016) study and verified that 'older adults' used social network services and applications to reduce social isolation (mental and physical) and encouraged people to actively engage with others.

**Figure 1:**
*Technology mitigating social isolation - Assumption 1*




Additionally, a substantial majority of respondents, 85%, expressed that they are either very likely or likely to believe using new technology has positively impacted their social well-being and reduced feelings of isolation. Conversely, only a minority group of 3% reportedly thought it was unlikely (see Figure 2). Also, an overwhelming 96% of respondents expressed a high likelihood of

recommending the use of technology to other seniors, with a response of very likely or likely. This suggests a strong belief among the surveyed population that embracing technology can be an effective strategy for alleviating social isolation among seniors (see Figure 3).

**Figure 2:**
*Technology mitigating social isolation – Assumption 1*

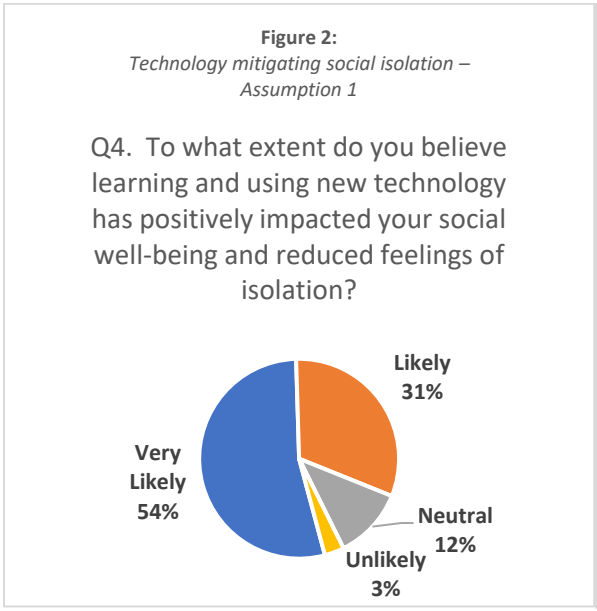
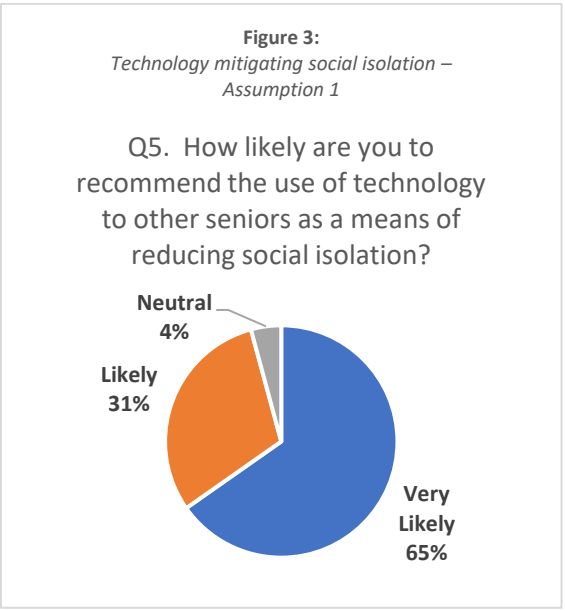



**Figure 3:**
*Technology mitigating social isolation – Assumption 1*




As shown in Figure 4, most respondents, representing 76%, reported that they had not encountered any challenges or barriers with using technology to connect with others. This positive perspective suggests these respondents are comfortable and adaptable to using technology and navigating digital platforms. The remaining 24% of respondents reported encountering challenges using technology, citing poor internet connectivity as one of the primary reasons causing frustration. About 88% (see Figure 5) reported that technology positively influenced their sense of social

**Figure 4:**
*Technology mitigating social isolation – Assumption 1*

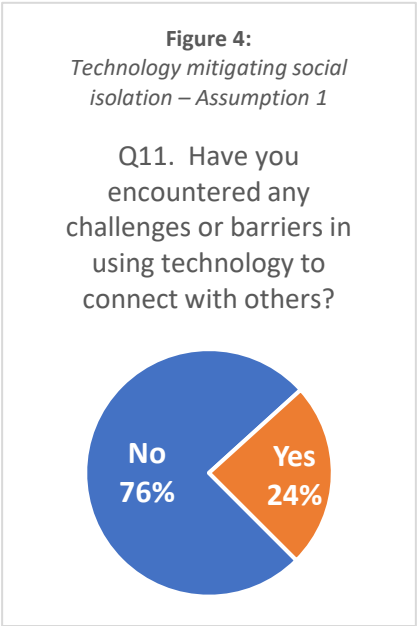
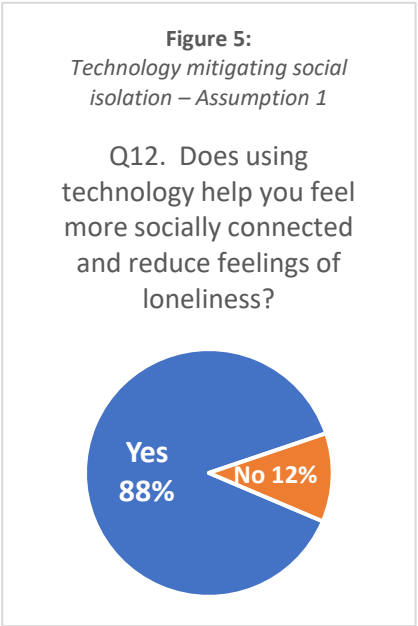



**Figure 5:**
*Technology mitigating social isolation – Assumption 1*



connectedness and its ability to alleviate feelings of loneliness. This suggests that, for the majority, technology is a valuable tool in fostering social relationships and connections. The quantitative data results align with the study by Wister et al, which emphasized that technological interventions help to reduce loneliness and social isolation among community-living older adults (Wister et al., 2021)

**Qualitative Results**

The qualitative data collection included nine questions that were provided to ten iPad recipients. The interview encompassed three questions (1, 2 & 3) to validate assumption one that addressed whether the use of technology would mitigate loneliness and social isolation. The qualitative data compiled for the second question, "Can you share an example where technology played a crucial role in preventing feelings of loneliness or isolation?" revealed these common themes that revolved around family, grandchildren, games, learning, playing, encouraging, connecting, and learning. Key respondent #1 stated, "Family can contact me all the time using my iPad, especially FaceTime with my grandchildren" (Key respondent #1, See Appendix C). This response strongly supports the study by Coelho & Duarte during the literature review, which emphasized that social technologies encouraged people to actively engage with others (Coelho & Duarte, 2016).

**Findings**

The quantitative survey findings indicate that a substantial number of older adults heavily rely on iPads for regular communication, with a majority expressing a positive impact on social well-being and reduced feelings of isolation. The overwhelming majority are likely to recommend technology to other seniors, reflecting a strong belief in its efficacy against social isolation. What is surprising is the reported challenges or barriers faced by 24% of respondents in

using technology to connect with others and the overwhelmingly positive attitudes towards recommending technology to other seniors. For example, despite encountering difficulties, a significant majority of 76% still expressed a substantial likelihood of recommending technology to seniors to reduce social isolation. This suggests that, despite the challenges experienced by some, there is a strong belief in the benefits of technology for enhancing social connections among seniors.

The key respondents shared positive experiences using technology, particularly iPads, to connect with others and alleviate loneliness. Many mentioned using Facebook and FaceTime to stay in touch with family, especially grandchildren. The convenience of video calls and the ability to learn and play games emerged as significant aspects. Some highlighted the impact on mental well-being, emphasizing the importance of technology in reducing feelings of isolation. Learning to use the iPad for various activities, such as searching for information, reading the news, and playing games, contributed to a sense of engagement and entertainment. Overall, the testimonials suggest that technology, especially iPads, plays a crucial role in enhancing social connections, learning, and leisure activities for older individuals.

**Assumption 2 (A2):**

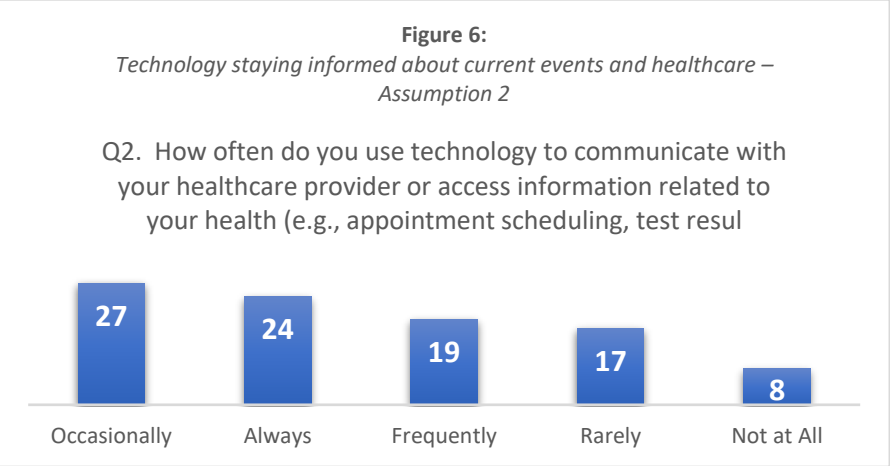
If seniors use technology, then, it will help them to stay informed about current events, information, and their health and well-being.

**Quantitative Results**

To validate assumption two, the survey questionnaire included four questions (2, 6, 7, & 13) addressing whether technology helped individuals stay informed about current events, information, and their health and well-being.

As shown in Figure 6, of the survey respondents, 27 occasionally, 24 always, and 19 frequently use their iPads to communicate with their healthcare provider or access health-related information.

**Figure 6:**
*Technology staying informed about current events and healthcare – Assumption 2*




This suggests that many respondents use technology for information and health-related interactions. Conversely, 17 rarely and eight do not use technology for healthcare communication or to access information. Instead, they would prefer to rely on traditional non-digital means to gather information or interact with others related to healthcare, or they may need help adopting technology for health-related purposes.

The quantitative data results in Figure 6 align with the findings of Chau & Osborne, 2018, during my literature review, which discussed multiple technological developments such as telehealth, assistive technology, and other devices for older adults provided evidence-based knowledge related to advanced care and the well-being of seniors (Chau & Osborne, 2018). Although the quantitative data results confirm assumption two, it is essential to recognize feedback from those who rarely or do not use technology. These respondents do not use technology due to lack of or poor internet quality, being worried about the privacy and security of their online information, or believing that technology is too complicated to use.

As shown in Figure 7, a significant majority of 86% of respondents expressed a strong inclination, stating that they are very likely or likely to recommend the use of technology to other seniors to stay informed about current events, general information, and healthcare-related

matters. This finding suggests a high level of confidence and satisfaction with the benefits of iPad technology in staying informed and connected. Also, in Figure 8, a substantial majority of 86% of respondents expressed high confidence, stating that they either very likely or likely believe that technology has improved their ability to receive timely information in emergencies. This suggests acknowledgment of technology's positive role in delivering critical information.

**Figure 7:**
*Technology staying informed about current events and healthcare – Assumption 2*

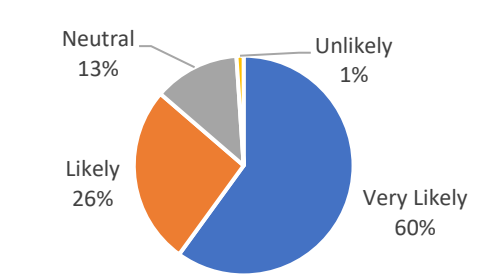
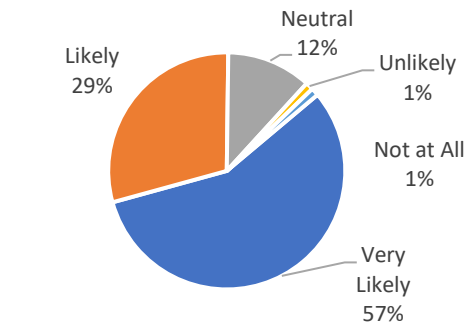
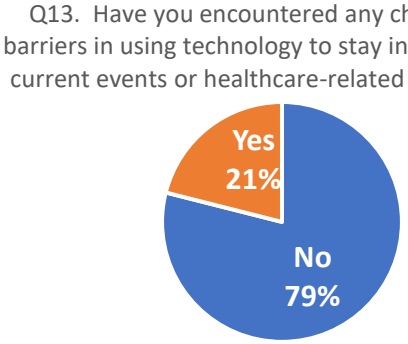



**Figure 8:**
*Technology staying informed about current events and healthcare – Assumption 2*




As shown in Figure 9, most respondents, 79%, reported no significant challenges, indicating a smooth and seamless experience in utilizing technology for staying informed. This suggests a high level of comfort among seniors in navigating their iPads for information. On the other hand, 21% of respondents acknowledged encountering internet connectivity challenges in using technology to stay informed.

**Figure 9:**
*Technology staying informed about current events and healthcare – Assumption 2*



**Qualitative Results**

My Qualitative interviews encompassed three questions (4, 5 & 6) that addressed whether the use of technology will help seniors stay informed about current events, information, and their health and well-being.

The qualitative data compiled for the fourth question, “How has technology impacted your ability to make informed decisions about your well-being?” revealed common themes around news, help, reading, medication, doctor, and family. Key respondent #2 stated, “I have access to a variety of social media. If I have a question about a certain medication, I can go on my apps and learn what the medication can do for me and if it's good for me or not” (Key respondent #2, See Appendix C). This response supports the literature that shows technology is growing and creating new opportunities to encourage active and healthy aging for older adults by encouraging participation, people could gain data literacy competencies and maintain their health and well-being (Regalado et al., 2023).

**Findings**

The quantitative and qualitative data collectively underscore the positive impact of technology on seniors' ability to stay informed about current events, information, and their health and well-being. The quantitative results demonstrate that a considerable number of respondents frequently use iPads for healthcare-related interactions, and a significant majority is likely to recommend technology to other seniors for staying informed. Additionally, the majority expresses confidence in technology's role in improving their ability to receive timely information, aligning with literature reviews emphasizing the benefits of technology for seniors concerning their care and well-being. Qualitatively, respondents highlight the accessibility of information through apps for medication-related needs, demonstrating how technology enables

informed decision-making about their well-being. Overall, the findings indicate that technology, particularly iPads, is widely embraced and positively perceived by seniors as a valuable tool for staying informed and maintaining their health and well-being.

**Assumption 3 (A3):**

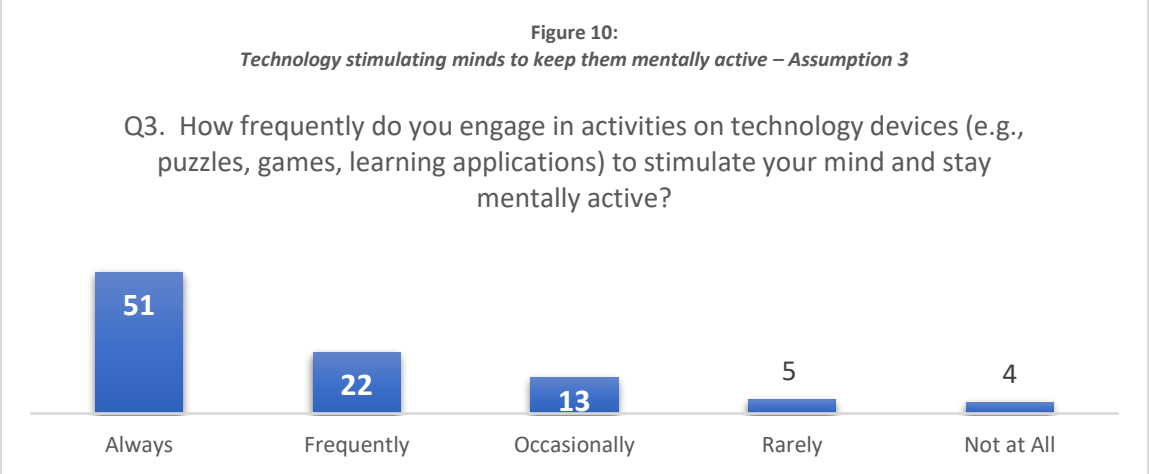
If seniors use technology, then, it will help stimulate their minds and keep them mentally active.

**Quantitative Results**

The survey included four questions (3, 8, 9 & 10) addressing whether technology helps seniors stimulate their minds and keep them mentally active.

As shown in Figure 10, most survey respondents, including 51, always, and 22, frequently use technology to engage in activities such as playing puzzles, games, and learning applications for mental stimulation. A notably smaller group of 13 occasionally engage in activities using technology for mental stimulation. Conversely, only five rarely and four do not use technology as a means of mental stimulation and opt for alternative non-digital methods or activities to stimulate their minds and stay mentally active.

**Figure 10:**
***Technology stimulating minds to keep them mentally active – Assumption 3***




As shown in Figure 11, a substantial majority of 91 seniors expressed high confidence, stating that they believe it is very likely or likely that using technology enhances their cognitive

abilities and keeps their minds active. This suggests the positive impact that technology has on cognitive engagement. Also, in Figure 12, a total of 91 seniors expressed they believe it is very likely or likely that technology has played a significant role in maintaining or improving their mental sharpness over the aging process. This indicates a positive impact technology is perceived to have on cognitive well-being.

**Figure 11:**
*Technology stimulating minds to keep them mentally active – Assumption 3*

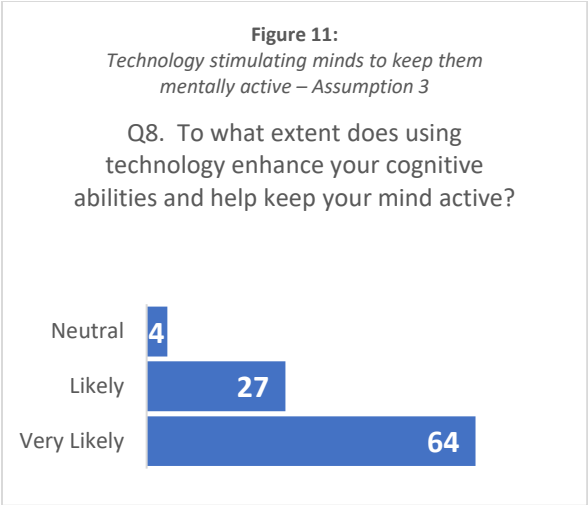
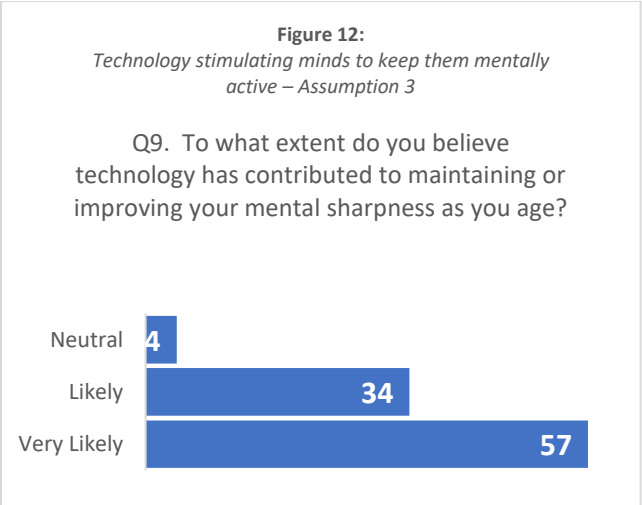
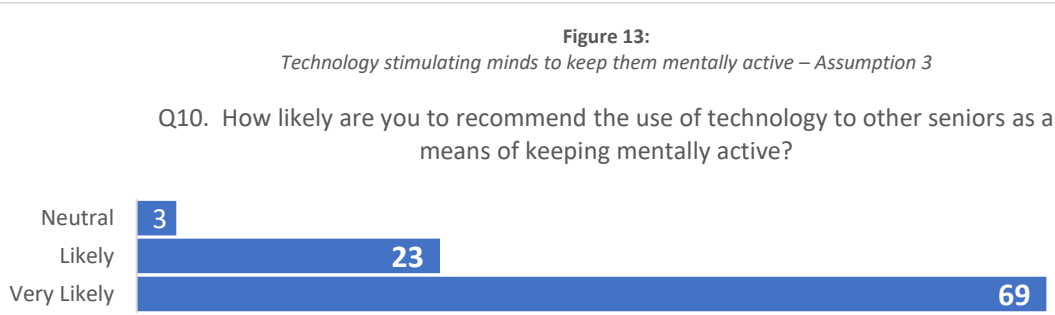



**Figure 12:**
*Technology stimulating minds to keep them mentally active – Assumption 3*




As shown in Figure 13, a significant majority of 92 respondents reported they are very likely or likely to recommend the use of technology to other seniors to keep mentally active. This suggests a positive role technology plays in fostering mental engagement and activity.

**Figure 13:**
*Technology stimulating minds to keep them mentally active – Assumption 3*




The quantitative data results align with the findings of Morrison & Koole in that the use of mobile devices helps to enhance learning (Morrison & Koole, 2018).

**Qualitative Results**

My Qualitative interviews encompassed three questions (7, 8 & 9) that addressed whether technology will help seniors stimulate their minds and keep them mentally active. The qualitative data compiled for question #4, "How do you incorporate technology into your daily routine to challenge yourself mentally? Can you provide examples of specific games, applications, or activities?" revealed common themes that revolved around games, use, learning, playing, family, reading, online, puzzle, news, and cooking. Key respondent #3 stated, "I like to do different things to challenge me, like playing the card game solitaire. There are different kinds of ways to play solitaire, and it challenges me" (Key respondent #3, See Appendix C). This response supports the literature review of technologies used to evaluate social isolation among older adults, including video games, social systems, chat rooms, social network sites, and other systems (Khosravi et al., 2016).

**Findings**

The findings from both quantitative and qualitative data collections highlight the positive impact of technology on seniors' mental stimulation and cognitive well-being. According to survey responses, a majority of seniors frequently or always engage in technology-driven activities such as playing puzzles, games, and learning applications for mental stimulation, while a smaller group opts for alternative non-digital methods. The quantitative data further illustrates a widespread belief among seniors that technology enhances cognitive abilities and maintains mental sharpness, with a significant majority expressing a high likelihood of recommending technology to other seniors for mental activity. Qualitative insights echo these sentiments, revealing common themes of using technology for games, learning, and staying mentally active in daily routines. The narratives from respondents, such as playing solitaire, align with the literature review on technologies designed to combat social isolation and stimulate cognitive

engagement among older adults (Khosravi et al., 2016). Together, the findings emphasize the positive role technology plays in keeping seniors mentally active and engaged.

# Chapter V: Conclusions, Recommendations, and Areas of Further Research

## Introduction

This study aimed to address the primary research inquiry: How can the use of technology for seniors in Monterey County effectively reduce loneliness and social isolation among the older population? Together with the main research question, the study sought to explore the following sub-questions:

Q1: Will the use of technology help older adults to mitigate loneliness and social isolation?

Q2: Will technology help older adults stay informed about current events and healthcare information to educate them about their health and well-being?

Q3: How can technology help seniors stimulate their minds and keep them mentally active?

The study evaluated the impact of technology use on alleviating loneliness and social isolation among older adults. Surveys and interviews were conducted with seniors in Monterey County, California, who received iPads through the Digital Connections Program. Participants were aged 60 or older or 18 and above with a disability, possessed an iPad for at least a month since October 2023, and attended a digital literacy training session.

Both quantitative data from 95 survey respondents and qualitative insights from ten key interviews supported the study's assumptions and contributed to the theory of change. While the primary research question was addressed, further research is recommended to address challenges, especially those related to internet connectivity. Future studies should delve deeper into addressing challenges related to the absence or inadequacy of internet connectivity. Additionally, efforts should be made to implement initiatives that improve digital literacy among seniors, focusing on cybersecurity awareness, data protection, user privacy, and safeguard measures.

## Conclusions

The Theory of Change of this study applies the formula of one IF and three THENs to measure the effectiveness of technology access and use to mitigate social isolation of seniors in Monterey County, CA.

IF seniors use technology:

**Assumption 1 (A1):** THEN, it would mitigate loneliness and social isolation.

**Conclusion:** After collecting and analyzing the quantitative data from 95 survey respondents, the research findings suggest a strong connection between the use of technology, particularly iPads, and the mitigation of loneliness and social isolation among older adults. The qualitative results from ten survey respondents indicate that a significant number of individuals frequently or always use their iPads for social interactions, supporting the assumption that technology can be a valuable tool to connect with others and alleviate loneliness. Additionally, a large majority of respondents believe that embracing technology has positively impacted their social well-being and are likely to recommend it to other seniors.

Despite the overwhelmingly positive quantitative findings, it is noteworthy that a minority (24%) of respondents reported encountering challenges, primarily related to poor internet connectivity. This discrepancy between positive attitudes and reported challenges underscores the complexity of implementing technology interventions for seniors. Nevertheless, the majority of those facing challenges still expressed a strong likelihood of recommending technology to mitigate loneliness and social isolation.

**Assumption 2 (A2):** THEN, it would help them to stay informed about current events, information, and their health and wellness.

**Conclusion:** This assumption was validated by the 95 quantitative survey participants and ten key respondents who participated in the qualitative interviews. The research findings strongly support assumption two, indicating that using technology, particularly iPads,

significantly contributes to seniors staying informed about current events, information, and health and well-being. The quantitative results reveal that a substantial number of respondents utilize iPads for healthcare-related matters, with many reporting a high likelihood of recommending technology to other seniors to stay informed.

The combined quantitative and qualitative results suggest a positive perception and adoption of technology among seniors as a valuable tool for staying informed and managing their health. The study recommends future research identifying information on available, reliable, and affordable internet services for seniors that may enhance their overall experience of utilizing technology. Furthermore, it suggests enhancing the data literacy training to include security awareness, data protection, user privacy, and safeguards measures. This will help to ensure seniors are protected from any potential data or security breaches and enrich their technological experiences and environment.

**Assumption 3 (A3):** THEN, it would help stimulate their minds and keep them mentally active.

**Conclusion:** The research findings strongly support assumption three, indicating that the use of technology among seniors has a positive impact on stimulating their minds and keeping them mentally active. The quantitative results reveal that a majority of surveyed seniors frequently or always engage in activities such as playing puzzles, games, and learning applications through technology for mental stimulation. Additionally, there is a common belief among seniors that using technology enhances cognitive abilities and maintains mental sharpness, as evidenced by the high confidence expressed in survey responses.

The qualitative data further reinforce the positive findings, with respondents describing how they incorporate technology into their daily routines to challenge themselves mentally. Examples include playing card games like solitaire, which aligns with the literature review on

technologies designed to combat social isolation and stimulate cognitive engagement among older adults.

The combined quantitative and qualitative results provide a comprehensive understanding of the positive role that technology plays in keeping seniors mentally active and engaged. The study recommends promoting digital literacy training among seniors, ensuring they are aware of and comfortable using various technological tools for mental engagement.

## Recommendations

### Recommendation 1:

Assumption one requires further research to address challenges related to poor internet connectivity and the growing need for accessible, reliable, and affordable internet services. Therefore, the local AAA staff must collaborate and partner with its local training providers and internet service providers to identify affordable and reliable internet services available for the older population to access and opportunities for improvements such as upgrading systems or networks. Within three months, AAA staff will research and assemble a matrix of affordable and reliable internet options to share with the affected individuals. This list will be made available in hard copy format and online on the AAA website. This would enable them to use technology to mitigate loneliness and social isolation with little concern about the lack of internet connectivity. The matrix will be reviewed and updated annually to reflect the most current, affordable, and reliable internet options.

### Recommendation 2:

Assumption two requires enhancing the data literacy training to include cybersecurity awareness, data protection, user privacy, and safeguard measures. This will help to ensure seniors are protected from any potential data or security breaches and enrich their technological experiences and environment. AAA will collaborate with its local digital literacy training provider to update its training curriculum to ensure it includes instruction on cybersecurity

awareness, data protection, user privacy, and safeguard measures. Within one month, AAA will work with its training provider to ensure the training curriculum is updated and that seniors are trained accordingly. This will help ensure seniors stay informed about current events and healthcare information for their well-being while ensuring they are protected from any potential data or security breaches and enrich their technological experiences and environment. The training material should be reviewed periodically and updated each year to ensure it includes the most current instructions on cybersecurity awareness, data protection, user privacy, and safeguard measures.

**Recommendation 3:**

Assumption three requires AAA to update it's Digital Connections Program policy with the local training provider that provides guidance on offering in-person and over-the-phone tech support for seniors covering areas such as Wi-Fi connectivity support, installing anti-virus software, and other relevant tech assistance. This is in response to the evolving technological needs of seniors who received an iPad as part of the Digital Connections Program. Within three months, AAA will work closely with its local training provider to update and implement the policy guidance. This collaboration ensures that the expertise and resources of both entities are effectively utilized and that the updated policy is practical and successfully implemented within the existing framework and available resources.

By implementing the recommended SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) strategies noted in Table 1 of this study, the AAA will be able to make confident decisions and take action to ensure the effectiveness of technology access and use to mitigate social isolation of seniors in Monterey County, CA.

**Table 1: SMART criteria for each recommendation**

| | **Recommendation #1:** | **Recommendation #2:** | **Recommendation #3:** |
|---|---|---|---|
| **Specific** | AAA will research and provide seniors with information on available, reliable, and affordable internet services. | AAA will collaborate with it's local training provider to enhance digital literacy training and curriculum to include cybersecurity awareness, data protection, user privacy, and safeguard measures. | AAA will update the Digital Connections Program policy with its local training provider that provides guidance on offering in-person and over-the-phone tech support for seniors, covering areas such as Wi-Fi connectivity support, installing anti-virus software, and other relevant tech assistance. |
| **Measurable** | By June 1, 2024, AAA aims to compile a list of at least ten reliable and affordable internet service options for seniors. The list will be made available in hard copy format and emailed to all iPad recipients with a link to access the information online on the AAA website. | By April 30, 2024, the training provider will ensure all curriculum is updated, and seniors are given the opportunity to schedule and receive training in-person or access an online training module to receive the training over a period of three months. The training provider will track the progress by evaluating the successful integration of the training modules. | By March 31, 2024, AAA will ensure the Digital Connections Program policy is updated, including guidelines for tech support. The success of the guidance will be measured by the number of ongoing support inquiries received from the iPad recipients within the first three months after implementation. |
| **Achievable** | Staff will be given a deadline to complete the matrix and upload the information on the AAA website. | AAA will work closely with the local training provider by leveraging their expertise and resources to integrate cybersecurity and related topics into the digital literacy training. | AAA will work collaboratively with its local training provider to update and implement the policy to provide tech support for seniors. The collaboration will consider available resources and expertise to ensure the practicality and success of the updated policy. |
| **Relevant** | Supports Assumption A1 | Supports Assumption A2 | Supports Assumption A3 |
| **Time-bound** | AAA will complete the research and email the information and website link on reliable and affordable internet services to seniors in Monterey County within the next three months. The matrix will be | The timeline to finish updating the curriculum is one month. The timeline to implement and provide the training is three months. The training material should be reviewed and updated | AAA and the training provider will collaborate to update the Digital Connections Program policy by March 31, 2024. Regular reviews will be conducted to assess the effectiveness of the new guidelines within the first three months. |

| | | | |
|---|---|---|---|
| | reviewed and updated annually or as often as needed. | annually or as often as needed. | |

**Areas for Further Research**

This capstone underscores the need for future researchers, beyond the local AAA, to explore challenges associated with poor internet connectivity. Further investigations could delve into broader social issues, such as the lack of internet infrastructure, the digital divide among the older population, and the impact of low internet availability in rural areas. To comprehensively address these challenges, researchers are encouraged to conduct in-depth qualitative interviews with respondents facing connectivity issues. This research should aim to identify and comprehend the root causes, patterns, and potential solutions for poor internet connectivity among older adults, contributing valuable insights that extend beyond the scope of AAA staff efforts.

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# Appendix A: Gantt Chart

| Activity/Task | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 |
|---|---|---|---|---|---|---|---|---|
| Continue Research | | | | | | | | |
| Revise Chapters 1-3 | | | | | | | | |
| Develop survey | | | | | | | | |
| Conduct Pilot Test of Surveys & Interviews | | | | | | | | |
| Conduct Surveys | | | | | | | | |
| Conduct Interviews | | | | | | | | |
| Collect Data | | | | | | | | |
| Analyze Survey & Interview Data | | | | | | | | |
| Draft Chapters 4-5 | | | | | | | | |
| Prep PowerPoint | | | | | | | | |
| Final edit of research paper and PowerPoint | | | | | | | | |
| Present research paper and project | | | | | | | | |

## Appendix B: Data Collection Instruments

**Survey/Questionnaire:**
The following survey/questionnaire will be provided to 100 older adults 60 years or older or adults 18 years or older with a disability who received a free iPad in Monterey County from the Area Agency on Aging as part of the Digital Connections Program.

### DEMOGRAPHIC QUESTIONS (select the boxes below for your answers):

1. **Age (select only one):**
   ☐ 18-59 ☐ 60-64 ☐ 65-69 ☐ 70-74 ☐ 75-79 ☐ 80-84 ☐ 85-89 ☐ 90+
2. **Status (select only one):**
   ☐ Married ☐ Never married ☐ Divorced ☐ Widowed ☐ Separated
   ☐ Domestic Partner ☐ Not married; living with partner ☐ Decline to state
3. **City/Town/Zip code where I live:** _____
4. **Primary Language:** ☐ English ☐ Spanish ☐ Other (specify)_____
5. **Gender Identity (select only one):** ☐ Female ☐ Male ☐ Transgender ☐ Intersex
   ☐ Genderqueer/Gender Non-Binary ☐ Other (specify)_____ ☐ Decline to state
6. **My Sexual Orientation is (select only one):**
   ☐ Straight/heterosexual ☐ Bisexual ☐ Gay ☐ Lesbian ☐ Asexual
   ☐ Other (specify)_____ ☐ Decline to state
7. **I am (select only one):**
   ☐ African American ☐ Asian/Pacific Islander ☐ Latino/Hispanic ☐ Multi-Racial
   ☐ Native American ☐ Caucasian ☐ Other (specify)_____

### IPAD QUESTIONS (select the boxes below for your answers):

On a scale of 1 to 5, where 1 is "Not at all" and 5 is "Always:

| QUESTIONS | Not at All | Rarely | Occasionally | Frequently | Always |
|---|---|---|---|---|---|
| 1. How frequently do you use your Apple iPad to connect with friends or family members? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. How often do you use technology to communicate with your healthcare provider or access information related to your health (e.g., appointment scheduling, test results)? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. How frequently do you engage in activities on technology devices (e.g., puzzles, games, learning applications) to stimulate your mind and stay mentally active? | ☐ | ☐ | ☐ | ☐ | ☐ |

On a scale of 1 to 5, where 1 is "Not at all" and 5 is "Very likely:

| QUESTIONS | Not at All | Unlikely | Neutral | Likely | Very Likely |
|---|---|---|---|---|---|
| 4. To what extent do you believe learning and using new technology has positively impacted your social well-being and reduced feelings of isolation? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. How likely are you to recommend the use of technology to other seniors as a means of reducing social isolation? | ☐ | ☐ | ☐ | ☐ | ☐ |

| QUESTIONS | Not at All | Unlikely | Neutral | Likely | Very Likely |
|---|---|---|---|---|---|
| 6. How likely are you to recommend the use of technology to other seniors for staying informed about current events, general information, and healthcare-related matters? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. To what extent do you believe technology has improved your ability to receive timely information about emergencies? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. To what extent does using technology enhance your cognitive abilities and help keep your mind active? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. To what extent do you believe technology has contributed to maintaining or improving your mental sharpness as you age? | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. How likely are you to recommend the use of technology to other seniors as a means of keeping mentally active? | ☐ | ☐ | ☐ | ☐ | ☐ |

11. Have you encountered any challenges or barriers in using technology to connect with others?
    ☐ Yes ☐ No
12. Does using technology help you feel more socially connected and reduce feelings of loneliness?
    ☐ Yes ☐ No
13. Have you encountered any challenges or barriers in using technology to stay informed about current events or healthcare-related information?
    ☐ Yes ☐ No

**Interview Questions:**

The following open-ended interview questions will be provided to 10 older adults (60 years or older) or adults 18 years or older with a disability who received a free iPad in Monterey County from the Area Agency on Aging as part of the Digital Connections Program.

1. Can you describe a specific instance where using technology (i.e., Apple iPad) helped you feel more connected with others?
2. Can you share an example where technology played a crucial role in preventing feelings of loneliness or isolation?
3. Are there any specific recommendations you would give to other seniors who are hesitant to use technology to address loneliness? What advice would you provide based on your own experiences?
4. How do you use technology to stay informed about current events and news?
5. How has technology impacted your ability to make informed decisions about your well-being?
6. Can you share any recommendations or advice for other seniors who may be hesitant to use technology for health-related information? What has worked well for you?
7. Can you describe a specific instance where using technology has stimulated your mind or kept you mentally active?
8. How do you incorporate technology into your daily routine to challenge yourself mentally? Can you provide examples of specific games, applications, or activities?
9. How do you balance traditional mental stimulation activities (e.g., reading books, solving puzzles) with technology-based activities? Do you find one more beneficial than the other?

## Appendix C: Key Respondents

Key respondent #1: Female, between 75-79 years of age
Key respondent #2: Male, between 75-79 years of age
Key respondent #3:  Female, between 70-42 years of age