

DIGITAL ADAPTABILITY AND VIRTUAL CONNECTEDNESS AMONG SILVER SURFERS

Dissertation submitted to Kerala University In partial fulfilment of the requirements for the award of the Degree of

MSc. Counselling Psychology

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2022- 2024

CERTIFICATE

This is to certify that the Dissertation entitled “Digital Adaptability and Virtual Connectedness among Silver Surfers” is an authentic work carried out by Hridya Sudheer , Reg. No. 60422115011 under the guidance of Dr.Pramod S K during the fourth semester of M.Sc. Counselling Psychology programme in the academic year 2022- 2024.

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DECLARATION

I, Hridya Sudheer, do hereby declare that the dissertation titled “Digital Adaptability and Virtual connectedness among Silver Surfers”, submitted to the Department of Counselling Psychology, Loyola College of Social Sciences, Sreekariyam, under the supervision of Dr.Pramod SK, Assistant professor of the Department of Counselling Psychology, for the award of the degree of Master’s in Science of Counselling Psychology, is a bonafide work carried out by me and no part thereof has been submitted for the award of any other degree in any University.

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ACKNOWLEDGEMENT

First and foremost, I extend my heartfelt praises and thanks to the Almighty for the abundant blessings and guidance throughout the course of my research work, enabling me to complete it successfully.

I would like to express my deepest gratitude to Dr. Pramod S.K., whose invaluable guidance, encouragement, and expertise were essential throughout the development of this dissertation. His dedication and mentorship have greatly influenced my work, and I am sincerely thankful for his continued support.

I would also like to extend my heartfelt thanks to Ms. Jeslin Maman, Head of the Department, for her insightful feedback and constant motivation, which have been pivotal in shaping the direction of this research. Her leadership and wisdom have been a guiding force throughout this journey.

A special mention to Dr. Ammu Luckose and Ms. Anila Daniel, Assistant Professors, whose constructive feedback and timely assistance helped me stay on track. Their guidance in various aspects of this work has been immensely valuable, and I am truly grateful for their support.

My heartfelt thanks to all the participants who took part in this study. Their time, patience, and willingness to share their experiences were crucial to the research, and I am deeply appreciative of their contribution.

Finally, I would like to acknowledge my family, friends, and colleagues for their unwavering encouragement and patience during this endeavor.

With warm regards,

Hridya Sudheer

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Abstract

Aim: This study examines the relationship between Digital Adaptability and virtual connectedness among silver surfers .

Methods: The data were drawn from a sample of 123 silver surfers age 55 and above . The samples were selected using convenience sampling and data was collected in online and offline mode. The sample consists of 62 males and 61 females. The digital adaptability scale and virtual connectedness scale were utilized to collect data. Spearman's rho was used for correlation analyses to examine the relationships between the variables. The Shapiro-Wilk test assessed the normality of the data, and the Mann-Whitney U test was employed to evaluate gender differences, in location, in retirement status and kruskal- Wallis test for education.

Results: The study examined the relationship between digital adaptability and virtual connectedness using Spearman's Rho correlation analysis. In older persons, the study discovered a significant positive association ($r = 0.785$, $p = 0.000$) between virtual connectedness and digital adaptation. Though not virtual connectivity, retired people showed considerably improved digital adaptation ($p = 0.037$). While education level had no effect on virtual connectivity ($p = 0.305$), it had a substantial impact on digital adaptability ($p = 0.012$). Individuals from semi-urban regions had greater levels of digital adaptation and virtual connectedness compared to their metropolitan counterparts ($p < 0.05$). On either measure, gender had no statistically significant impact.

Conclusion : This study aimed to examine the relationship between the Digital adaptability and virtual connectedness among silver surfers , using a sample of 123 silver surfers of age 55 and above. The study's findings, which highlight the significance of digital abilities in preserving social ties, showed that older persons who are more adept at using technology also tend to be more virtually linked. Retirement and education were found to be significant determinants of digital adaptability, while geographic location was found to have an impact on virtual connection and digital adaptability. Neither was significantly influenced by gender. These results emphasize the need for focused digital literacy initiatives to increase people's digital involvement and social networks, particularly for semi-urban populations, retirees, and those with less education.

Keywords: Digital adaptability , virtual connectedness , silver surfers.

CHAPTER 1

INTRODUCTION

The digital age has brought about a dramatic transformation in the ways that people connect, communicate, and access information due to the rapid growth of technology. Understanding how older adults, also known as "silver surfers," navigate and adapt to the digital landscape is becoming increasingly important, even though younger generations are frequently considered as digital natives. The term "silver surfers," which often refers to those 60 years of age and beyond who actively utilize digital technology and the internet, is becoming more and more relevant as the world's population ages and the digital divide closes. Communication is changing instantly and globally as a result of digital technologies. No matter where they are in the world, people may contact with one another via messaging applications, social media, and email. Collaboration on a personal and professional level is encouraged by this. This connectivity is essential for maintaining relationships, sharing information, and participating in global discussions.

Digital technologies, also known as gerontechnology when they are designed with older individuals in mind, have emerged as essential resources in a number of healthcare fields. These technologies range from smartphone programs that support mental and physical wellbeing through cognitive training and exercise regimens to telehealth applications that improve primary care access. Though promising, a comprehensive systematic study defining the effectiveness and suitability of these digital treatments for the elderly population is still lacking.

The phrase "digital world," which refers to the enormous and linked universe of virtual worlds and digital technologies, has been ingrained in contemporary culture. The creation, storing, processing, and transmission of information via electronic devices and systems is the fundamental aspect of the digital world. The internet, a worldwide network that connects computers, cellphones, tablets, and other digital devices, has a profound impact on this world.

The internet dissolves barriers of space and time by facilitating seamless connection, communication, and information access over great distances.

The digital world includes the internet as well as a vast range of technical advancements including virtual reality, artificial intelligence, and the Internet of Things (IoT). These innovations change how we interact with our surroundings and improve the functionality of digital gadgets. For instance, virtual reality produces immersive experiences that obfuscate the boundaries between the actual and digital worlds, while artificial intelligence fuels complex algorithms that run recommendation systems, search engines, and personal assistants. Smarter homes, towns, and industries are promoted by the Internet of Things (IoT), which links commonplace objects to the internet so they can trade and gather data.

The production and administration of digital content, such as blogs, social media posts, and multimedia, is another aspect of the digital world. This feature emphasizes the transition from traditional media to digital platforms, which enable content to be quickly shared and accessed by a worldwide audience. The democratization of knowledge has significant effects on education, entertainment, and communication. It also presents never-before-seen chances for creativity and teamwork.

The digital world does, however, also bring with it difficulties and worries. To guarantee that the advantages of digital technology are fairly distributed and that people's rights are upheld, concerns like data privacy, cybersecurity, and the digital gap must be addressed. It is critical to strike a balance between innovation and responsible use as the digital world develops to make sure that technical breakthroughs benefit society while reducing hazards.

The phrase "silver surfers" describes senior citizens who actively utilize digital devices, especially the internet. With digital technology becoming more and more ingrained in daily life, this demographic—which often includes people 55 and older—has witnessed a notable rise in both size and impact. The ascent of the silver surfers is indicative of a larger cultural movement toward digital inclusion, in which individuals of all ages are using technology to improve their quality of life.

The improvement of social connectivity is one of the most significant effects of digital technologies on silver surfers. Social media sites such as Facebook, Instagram, and Twitter allow senior citizens to join in online groups, discuss life events, and maintain relationships with friends and family. Relationship maintenance has become increasingly dependent on video conferencing platforms like Zoom and Skype, especially in a world where physical distance is becoming more prevalent. By fostering a sense of community and connection, these technologies lessen feelings of loneliness and isolation.

The internet has completely changed how older web users obtain information and services. Online shopping platforms make it easier to make purchases without having to go to actual locations, which is especially helpful for people who reside in rural places or have mobility impairments. Digital technologies also provide a lot of information on hobbies, finances, and health accessible. With the help of tutorials, guidance, and support provided by websites and applications devoted to these topics, older folks can make better decisions and handle many facets of their lives.

The way older folks receive healthcare has changed because to telemedicine and health applications. Silver surfers can receive medical advice more easily and with less travel when they use telemedicine to consult with medical professionals remotely. The use of health monitoring gadgets and applications, like those that track medication compliance or vital signs, empowers older persons to take charge of their health. These technologies enable prompt access to medical information and support, which can improve health management and result in better outcomes.

Digital technology also contribute to leisure activities and cognitive function stimulation. Mental activities such as games, puzzles, and instructional platforms available online can support the maintenance of cognitive health. In addition, a variety of leisure options, including e-books, audiobooks, and movies and music, are accessible through streaming services and digital libraries, meeting the interests and tastes of a wide spectrum of users.

Many older folks are learning new skills that improve their digital literacy when they interact with digital tools. A sense of empowerment and independence can be attained through using a variety of programs, comprehending online safety, and being adept at navigating digital networks. Continual skill improvement contributes to satisfaction on a personal level as well as participation with contemporary society functions, like online financial management and digital civic engagement.

Despite these advantages, difficulties still exist. Certain older persons may encounter obstacles due to differences in digital literacy, accessibility problems, and worries about internet security. It is imperative to tackle these obstacles by providing specialized assistance and instruction in order to guarantee that seniors can effectively utilize digital technology for enhancing their standard of living. All things considered, digital technologies have a significant impact on the life of silver surfers by providing a wealth of chances for enrichment, convenience, and connection.

In the connected world of today, the necessity for digital technologies is becoming more and more apparent. These technologies affect everything from everyday ease to economic growth and societal advancement; they are not merely tools; rather, they are vital elements that shape and improve many facets of modern life.

The internet is a great informational resource that offers quick access to a wide range of materials. People may easily discover knowledge on almost any issue, from scholarly research to useful advice, thanks to digital technologies. With the help of this access, people can further their education and better themselves by picking up new skills, staying up to date on current affairs, and making wise decisions.

Economic efficiency is fueled by digital technology, which simplify processes, cut expenses, and open up new company prospects. Productivity is increased by automation and digital technologies across a range of industries, including services and manufacturing. Global trade is facilitated by e-commerce platforms, and firms can more effectively reach and engage with targeted audiences using digital marketing technologies. Technological innovation also results in the creation of new goods and services, which boosts competitiveness and economic growth.

Digital technologies are revolutionizing the healthcare industry by enhancing patient care and management. By enabling remote consultations, telemedicine makes healthcare services more accessible and minimizes the need for travel. Electronic health records (EHRs) facilitate the management of patient information, and wearable technology and health applications offer tailored health insights and real-time monitoring. Improvements in health outcomes and more effective healthcare systems are a result of these developments.

Through the provision of a wide range of learning resources and tools, digital technologies improve educational experiences. Individual requirements can be catered to through flexible learning options provided by virtual classrooms, educational applications, and online courses. These tools help people in diverse geographic and socioeconomic circumstances study throughout their lives and increase access to education.

Technology makes daily chores easier, from online banking for financial management to digital calendars for appointment scheduling. Automation technologies improve efficiency and personal convenience. Examples of these include virtual assistants and smart home appliances. Cloud computing and digital collaboration technologies facilitate smooth remote work and teamwork in professional contexts, according to the dynamic nature of work situations.

By a variety of ways, digital technologies also support security and safety. Cybersecurity safeguards shield private data from potential threats and unlawful access. Digital technologies also contribute to public safety, from surveillance tools that aid in crime prevention and response to emergency warning systems.

Digital platforms offer a platform for social and civic participation, enabling people to take part in advocacy, governance, and community activities. People can engage in political and social issues, share their ideas, and rally support for causes through social media and online forums. These platforms provide areas for discourse and activity.

Because of their adaptive tools and applications, digital technologies make places more accessible to people with impairments. Digital content and services can be made more inclusive with the use of assistive technologies like voice recognition software and screen readers. More involvement in the educational and professional spheres as well as other facets of society is encouraged by this inclusivity.

Innovations like smart grids, energy-efficient systems, and digital environmental status monitoring are examples of how technological breakthroughs contribute to environmental sustainability. These technologies support sustainable activities, trash management, and resource conservation.

To sum up, there is a great and diverse need for digital technologies. They improve personal convenience, healthcare, education, economic efficiency, communication, and information access. They are also essential for social interaction, accessibility, safety, and environmental sustainability. Digital technologies will probably have a greater social influence as they develop, highlighting how crucial they are to creating a world that is more efficient, connected, and knowledgeable.

The ability of people, groups, and societies to successfully accept, incorporate, and make use of digital technologies as they develop is referred to as digital adaptability. This idea includes multiple aspects, such as: People need to constantly learn new digital skills in order to stay up to date with technological developments. This entails picking up new software skills, figuring out updated user interfaces, and keeping up with the latest developments in digital tools and trends. Changing everyday routines and habits is a common aspect of adjusting to digital technologies. For example, switching from traditional to digital banking necessitates rethinking money management strategies and being aware of internet security protocols. To be competitive, businesses must incorporate new technologies into their daily operations. This could be implementing cloud computing, making decisions with data analytics, or streamlining procedures through automation to increase productivity. Companies need to cultivate a culture that encourages digital agility.

Societies must encourage digital literacy among all demographic groups if they are to fully profit from technological improvements. This involves offering information and tools to assist individuals in comprehending and making efficient use of digital technologies. Broad social adaptation requires adequate digital infrastructure, which includes digital device access and high-speed internet. In order to guarantee fair access to digital technology, efforts must be made to close the digital divide. Because they are accustomed to using old techniques or are afraid of technology, some people and organizations may oppose digital developments. It will need

targeted teaching and proof of the advantages of digital tools to overcome this opposition. Data privacy and cybersecurity are becoming more and more of a problem as digital technologies develop. It is crucial to address these issues in order to foster trust and guarantee secure online interactions.

The ability to communicate and engage with others via digital platforms and technology, regardless of one's actual location, is referred to as virtual connectivity. Social media sites such as Facebook, Instagram, and Twitter enable users to interact with friends, post updates, and have conversations. Social media strengthens links between people and gives communities a place to come together around common interests or concerns. Online face-to-face communication is made possible by tools like Zoom, Microsoft Teams, and Google Meet. These platforms are essential for virtual events, remote work, and interpersonal relationships.

Real-time document collaboration, sharing, and storing are made possible by platforms such as Microsoft OneDrive, Dropbox, and Google Drive. Smooth teamwork is facilitated by these tools, particularly in distant or hybrid work settings. Teams may work more productively and collaboratively when they use tools like Monday.com, Asana, and Trello to manage projects, track progress, and organize tasks. People can ask questions, share expertise, and have debates about a variety of topics on websites such as Reddit, Quora, and niche online communities. Professional networking, career advancement, and industry-specific contacts are made easier by platforms like LinkedIn, which link people and firms in their respective sectors. Through virtual connectivity, geographical boundaries are removed and global communication is made possible. This worldwide reach promotes cooperation, understanding, and cross-cultural interchange.

Depending on the schedules of the participants, conversations can take place asynchronously or in real-time via digital platforms, which provide flexible and easy means of staying connected. Constant notifications and information overload can have a negative impact on productivity and mental health. Keeping a healthy balance requires good management of digital connections. Although virtual platforms improve connectivity, they could not have the same richness and complexity as face-to-face conversations. It's still difficult to provide relevant and interesting conversation in online environments. In conclusion, virtual connectivity and digital adaptability are related ideas that are essential to understanding the current digital environment.

Digital connectivity highlights the capacity to communicate and work together via digital platforms, whereas digital adaptability entails the continuous process of integrating and employing new technology.

The population of silver surfers, virtual connection, and digital adaptation are interwoven features of the contemporary digital landscape. Virtual connectivity has revolutionized human interaction and collaboration, and digital flexibility is necessary to navigate and capitalize on technological breakthroughs. The population of "silver surfers" is a prime example of how older folks are becoming more and more involved with digital technologies, bringing to light both the advantages and disadvantages of this trend. Taking care of these issues will be essential to building a connected and inclusive digital society as digital technologies advance.

NEED AND SIGNIFICANCE OF THE STUDY

The unique requirements of varied older persons may not be sufficiently met by currently available solutions, such as social support networks and healthcare systems, especially when it comes to social engagement, cognitive stimulation, and health management. Due to a lack of confidence, skills, or access, many older folks are still kept out of the digital world, which limits their ability to fully benefit from technology.

The purpose of this project is to investigate how digital tools can improve the general wellbeing and quality of life of older persons by enabling them to manage their health, maintain cognitive function, and participate in social relationships.

Knowing what influences digital adaptation can help design treatments that provide older persons the knowledge, confidence, and skills they need to successfully navigate the digital world. Investigating the effects of virtual connectedness can help create online groups and platforms that support deep connections and fight social isolation in the senior population. This research will help comprehend how older persons' needs and preferences are changing as technology advances, ensuring that future treatments are pertinent and address their unique well-being.

STATEMENT OF THE PROBLEM

The study's stated goal is to investigate the virtual connection and digital adaptation of "silver surfers," a term coined to characterize older persons who use digital technology and the internet. The growing dependence of older individuals on digital platforms for information, services, and communication makes it critical to comprehend how they adjust to new technological developments and sustain virtual relationships. The purpose of the study is to look into the opportunities, problems, and variables that affect this age group's digital adaptability as well as how much they use virtual tools to maintain social connections. Comprehending these facets is imperative in mitigating the digital divide and augmenting the welfare and societal integration of senior citizens in a progressively digitalized society.

OPERATIONAL DEFINITION OF KEY TERMS

Digital Adaptability

The ability of silver surfers to effectively learn, use, and navigate the cyber world in spite of age-related problems or initial unfamiliarity with digital technologies is referred to as digital adaptation. In order to improve their involvement and participation in the digital realm, it includes their ability to accept digital tools, comprehend online threats, and incorporate digital abilities into their everyday lives.

Virtual connectedness

The ability of silver surfers to create and preserve deep social and emotional connections via digital platforms and technologies is referred to as virtual connectivity. It includes all they can do to learn how to use digital tools to interact with people, take part in online groups, and build relationships that give them company, support, and a feeling of community in the virtual world.

Silver Surfers

People who actively use digital technologies, such as the internet and different digital gadgets, for communication, information retrieval, entertainment, social networking, and other purposes are known as "silver surfers," and they are usually 55 years of age or older.

OBJECTIVES OF THE STUDY

General Objective

- To assess the nature and extent of digital adaptability and virtual connectedness among silver surfers. **Specific Objective**
- To assess the extent of digital adaptability among older adults participating in the study.
- To measure the extent of virtual connectedness experienced by older adults engaging with digital platforms.
- To examine the relationship between digital adaptability and virtual connectedness among silver surfers.
- To understand whether digital adaptability and virtual connectedness varies among silver surfers on the basis of gender, education level, location, and retirement status respectively .

HYPOTHESES

- $H_{0(a)}$:There is no significant relationship between digital adaptability and virtual connectedness among silver surfers.
- $H_{0(b)}$:There is no significant difference in digital adaptability and virtual connectedness among silver surfers on the basis of gender.

- $H_{0(c)}$: There is no significant difference in digital adaptability and virtual connectedness among silver surfers on the basis of education level .
- $H_{0(d)}$: There is no significant difference in digital adaptability and virtual connectedness among silver surfers on the basis of location.
- $H_{0(e)}$: There is no significant difference in digital adaptability and virtual connectedness among silver surfers on the basis of retirement status.

CHAPTER II

REVIEW OF LITERATURE

The idea of digital adaptability and virtual connectedness has become more important for older persons, sometimes known as "silver surfers," in an era where digital technologies are developing quickly. It's critical to comprehend how the older population uses and interacts with digital tools as its numbers rise. For older people, incorporating technology into daily life has both benefits and drawbacks that affect their social interactions, mental health. The ability of older persons to effectively use and incorporate digital technologies into their lives is referred to as digital adaptation. This involves using digital health tools, interacting with social media, and navigating online platforms. On the other side, virtual connectivity refers to the ways in which modern technologies promote significant social connections and interactions, possibly reducing problems like loneliness and social isolation.

In order to better understand how digital technology can improve older folks' lives by encouraging increased connectivity and involvement, this review examines the most recent research on these subjects. It shows numerous technical advancements that have been created to specifically cater to the demands of silver surfers, from wearable health monitoring and social networking sites to virtual reality and smart home appliances.

Even with these encouraging advancements, usability, accessibility, and digital literacy issues are just a few of the major obstacles that older individuals frequently encounter when trying to connect digitally. To optimize the advantages of digital tools and make sure they are suited to the requirements of an older population, it is crucial to comprehend these obstacles and find workable solutions.

This review attempts to give a thorough overview of how digital adaptation and virtual connection affect older persons by exploring recent studies and conclusions. It does this by providing insights into the potential advantages and difficulties faced by silver surfers.

Albareda and García-Barranquero (2024) in their paper "Old by Obsolescence: The Paradox of Aging in the Digital Era," which was published in *Medicine*, explore how society's conceptions

of aging are shaped by the rapid improvements in technology in their paper "Old by Obsolescence: The Paradox of Aging in the Digital Era," which was published in **Medicine**. They present the "paradox of aging in the digital era," contending that aging is frequently linked to obsolescence and inefficiency due to technology advancements. Even younger people may come across as antiquated if they are unable to keep up with technological advancements. The authors criticize established aging models, such as those developed by Rowe and Kahn, for failing to take into account digital and structural elements that shape public opinion. They stress that in order to support people in the digital era, a more comprehensive knowledge of aging is required, one that incorporates social, cultural, and technological elements.

Joy Mangul et al., (2024) in their study "Empowering Active and Healthy Ageing: Integrating IoT and Wearable Technologies for Personalised Interventions," which was published in *Applied Sciences*, examines the use of technology to help older persons who are socially isolated. In order to provide individualized engagement, the study presents an Internet of Things platform that classifies individuals into four profiles using supervised learning. Wearable technology, such as activity-monitoring bands and socks, and the AGAPE Assistant, which offers personalized solutions via an intuitive mobile health platform, are essential components. Caretakers can oversee these interventions with the use of the AGAPE Monitor. With over 112 participants, the platform is deployed in Italy, Romania, and Portugal with the goal of improving well-being through the integration of IoT technology with social contact. It has the potential to lessen social isolation and encourage active aging.

Mahmoud in (2024), in their study titled "Aging in the Digital Age: Public Beliefs About the Potential of Virtual Reality (VR) for the Aging Population," which explores how the public views VR technology as a means of improving the well-being of older persons. Three main themes emerge from the study's analysis of 1,917 social media comments regarding VR apps for seniors using machine learning: technological empowerment, social and ethical issues, and the advantages of engagement on both a cognitive and physical level. According to the analysis, elders have a generally positive attitude toward virtual reality, underscoring the technology's potential to encourage both mental and physical exercise. The study offers insights into how technology might help healthy aging and highlights the necessity for ethical considerations and true social connection in VR adoption.

Blackman et al. (2023) in their article "Adaptability of Older Adults at the Onset of COVID19," compare the ways in which older individuals and younger age groups adapted to the pandemic during its early stages in *Activities, Adaptation & Aging*. According to 132 older adults who participated in an online poll with 1,405, older people were more resilient and adaptable and chose traditional media for learning about COVID-19. Compared to younger adults, they felt less personal impact and less information overload about the pandemic. In order to effectively help older persons during crises, the study recommends changing policies and practices. It highlights the importance of customized approaches that take advantage of older adults' skills and preferences in terms of information transmission and adaption, as well as their efficient coping mechanisms.

Borghesi et al. (2023) in their paper "Exploring Biomarkers of Mental Flexibility in Healthy Aging: A Computational Psychometric Study," which was published in *Sensors*, investigate mental flexibility (MF) in healthy older individuals, discovering physiological and psychological indicators. The study goes beyond conventional executive function tests by examining the cognitive and affective aspects of MF using sophisticated methodologies such as supervised machine learning and non-linear multivariate approaches. Important discoveries show that heart rate variability and respiratory variation are useful biomarkers for differentiating between MF levels, and they are more informative than conventional cognitive testing. The study highlights the importance of physiological indicators in evaluating cognitive flexibility and resilience and offers novel directions for cognitive neuroscience and aging studies in the future.

Martin et al. (2023) propose "DigiHEALTH," a suite of digital solutions intended to improve the quality of life for the aging population, in their article published in the *International Journal of Environmental Research and Public Health*. DigiHEALTH, which addresses the issues associated with global aging, offers eight solutions that help manage health concerns and lower digital obstacles for older persons. This line includes digital voice assistants and face recognition technology in addition to individualized nutrition plans and well-being evaluation tools. DigiHEALTH is an online resource that provides comprehensive details about its preparedness and utilization, having been developed through considerable study and

stakeholder participation. In order to encourage long-term healthy aging, the study highlights its potential for widespread use and further improvements.

Segkouli et al., (2023) in their study "Smart Workplaces for Older Adults: Coping 'Ethically' with Technology Pervasiveness" by Segkouli et al., which was published in *Universal Access in the Information Society*, explores the moral dilemmas associated with incorporating AI, VR, and IoT into older adult employment. While highlighting the potential advantages of these technologies for enhancing workability and wellbeing, the study also tackles privacy, transparency, accountability, autonomy, and trust issues. The authors provide SmartFrameWorK, an ethics framework that directs the moral application of digital tools through a five-dimensional approach. They illustrate how ethical management of individualized digital services can promote trust using a case study. The paper highlights how maintaining moral standards is essential to upholding people's rights and boosting user confidence in smart workplaces.

Nguyen et al. (2022), in their study, "Elderly People's Adaptation to the Evolving Digital Society: A Case Study in Vietnam," among older adults in Vietnam experiencing a rapid digital change. The study pinpoints the benefits and problems brought about by digital innovations, concentrating on sociodemographic elements, active aging theories, and senior tech attitudes. The study used qualitative approaches, such as surveys conducted at Hanoi University of Science and Technology, and concludes that age-related concerns and sociodemographic characteristics have a major impact on older persons' ability to adapt digitally. In order to promote older people's participation in Vietnam's digital society, the study recommends government policies that are supportive of digital inclusion, as well as the involvement of telecoms and online service providers.

Sheng et al. (2022) developed a taxonomy to classify the effects of digital technologies on successful aging. The article, "The Impacts of Digital Technologies on Successful Aging in Non-Work and Work Domains: An Organizing Taxonomy," was published in *Work, Aging and Retirement*. The study looks at how these technologies affect a variety of spheres of life, including personal and professional ones. The enhancement of older individuals' physical and

mental well-being, social interaction, and general quality of life are among the main effects. The taxonomy highlights the technologies' ability to manage age-related difficulties by classifying them according to their functions and consequences. The study emphasizes the need for more research and real-world applications and asks for customized interventions and policies that make use of digital technology to promote good aging.

Hunsaker, Hargittai, and Piper , (2020) , in their study examines the connection between anxiety and online social connections in older persons 60 years of age and older. It was published in the International Journal of Communication. This study looks at broader online social interactions as opposed to other research that concentrated on the relationship between Internet use and sadness and loneliness. The authors discover that older persons who participate in online forums and debates, especially those centered around health and aging, frequently have greater anxiety levels after analyzing data from an online survey. This shows that while social connection online might improve connectedness, it can also make people feel more anxious, underscoring the complicated impacts of digital interactions on mental health in the elderly.

Ibarra et al. (2020) carried out a systematic review, to assess technology-supported therapies targeted at enhancing social well-being among older persons, especially those with limited mobility. The review examined 25 research out of 1,178 papers, with a focus on technology-mediated communication for long-distance relationships. It was shown that whilst more current research has favored more straightforward, user-friendly technology, early interventions frequently needed computer and internet training. The majority of the technologies that were assessed were off-the-shelf items; only few were specially made for senior citizens. While the review noted some encouraging results in reducing social isolation and loneliness, it also advocated for additional thorough studies, such as randomized controlled trials, to evaluate the efficacy of these interventions. To improve these solutions, future research should incorporate human variables and offer thorough information on technology usage.

Superable Revelo, J. J., Soriano Superable, C., and Pegalan Alegarme, H. (2020) in their study, The experiences of senior citizens with social connectivity in the digital age. In 2020,

Soriano Superable, Superable Revelo, Pegalan Alegarme, and the International Forum Journal carried out a phenomenological study to investigate older persons' perceptions of social connectivity through in-person contacts. The study sought to investigate older individuals' perceptions of valuable social connections in their lives using Van Manen's six-step technique. Twelve elderly residents of Ozamiz City, Misamis Occidental, Philippines' coastal barangays participated in the study. They were chosen using purposive and snowball sampling methods. Five key themes emerged from the analysis that best describe their experiences: relief, which reflects the emotional solace found in social connections; acceptance of old age, which entails coming to terms with aging and its social implications; strength in spirituality, emphasizing the importance of spiritual connections; sense of belonging, which highlights the significance of feeling integrated within a community; and comfort in physical presence. The study highlights the importance of in-person encounters for elderly persons, even with the growing popularity of digital communication. These interactions offer a rich background for comprehending their distinct requirements and preferences for social connectivity.

Barbosa Neves et al. (2019) investigated whether or not it would be possible to use cutting-edge communication technologies to improve social connections among elderly residents in residential care. In a research that was published in the *Journal of Applied Gerontology*. Twelve people took part in the three-month study, which used usability tests, field observations, semistructured interviews, and psychometric measures. Connecting with distant relatives using technology has proven to be an excellent way to improve perceived social contact. Although there were only modest gains in meaningful social connectedness, individuals did report feeling better overall and having more confidence when utilizing digital technologies. The study also highlighted the drawbacks and difficulties associated with integrating technology, highlighting the need for customized approaches to better serve the requirements of older persons. The results offer insightful information for improving technology-based therapies meant to lessen social isolation.

Choi, Lazar, Demiris, and Thompson in (2019), in their study titled "Emerging Smart Home Technologies to Facilitate Engaging with Aging," which examines the ways in which smart home technology (SmHT) can help older persons age in place and manage their everyday lives, published by *Journal of Gerontological Nursing*. Emphasizing how these technologies, with

their passive monitoring capabilities, assist both physical and cognitive functioning, the concept of engaging with aging (EWA) is stressed. The essay examines new and developing SmHT and highlights how they can improve quality of life and independence. It does, however, also address practical and ethical issues, such as usability, security, and privacy. The study highlights important factors for future technological development and offers insights on how SmHT can help aging.

Hughes, McDonald, and Sander (2017), in their study *The potential of virtual reality (VR) technology to improve older individuals' social connectivity and well-being*. In order to alleviate social isolation and loneliness, their research emphasizes virtual reality's growing significance in senior healthcare. The authors address the potential applications of virtual reality (VR) beyond entertainment, speculating that developments in augmented reality and VR may present novel ways to enhance older individuals' social participation and overall wellness. They highlight the need for more investigation into the effects of virtual reality (VR) on psychological and social issues, as well as the technology's transformative potential in senior care to improve quality of life.

Ianculescu et al. (2017) Their article, "Innovative, Adapted Online Services That Can Support the Active, Healthy, and Independent Living of Ageing People: A Case Study," was published in the *International Journal of Economics and Management Systems*, examines how eHealth can support older adults, especially those with IT literacy. It is a ProActive Ageing project, the project comprises the "Centre for Active Ageing" module, which aims to promote learning, information sharing, and personal growth for senior citizens. The technical implementation of this module, which uses blockchain technology and WordPress for safe identity management, is covered in depth in the paper. The module attempts to improve user motivation, health education, and cognitive abilities by emphasizing high-quality content. The study emphasizes the ways in which cutting-edge web services might help support independent living and tackle the problems associated with an aging population.

Iancu and Iancu,(2017), in their study "Elderly in the Digital Era: Theoretical Perspectives on Assistive Technologies," which was published in *Technologies*, looks at the problems that the world's aging population and longer life expectancies bring about and how assistive technology (AT) might help. The authors contend that by promoting older individuals' independence and quality of life, AT can lessen the burden on established healthcare systems. The study looks at how improvements in AT can support the preservation of autonomy, the management of medical issues, and the improvement of social ties. The theoretical underpinnings of AT implementation are also covered, including their consequences for policy, viability from an economic standpoint, and societal attitudes. The report promotes technology-driven solutions to address the various demands of aging populations and emphasizes how AT may revolutionize the way aged care is provided.

Rogers and Mitzner ,(2017) paper which appeared in *Futures*, predicts how future technology developments will affect older individuals in 2050 with an emphasis on social connectivity, autonomy, health, and well-being. The authors investigate how seniors' freedom and quality of life could be improved by information, communication, and robotic technologies. They illustrate the possible advantages and difficulties—such as the possibility of growing social isolation and the digital divide—through a number of future scenarios.

In order to make sure that upcoming technologies satisfy the demands of older persons, the article highlights the significance of proactive technology design that engages these individuals now. In order to ensure mass access, it promotes the early integration of characteristics of adaptive technology and the construction of infrastructure.

Sinclair and Grieve (2017),An innovative study ,investigated the effects of Facebook on social connectivity in older individuals, a group that is becoming more and more active on social media. The study, which included 280 participants between the ages of 55 and 81, using exploratory factor analysis to distinguish between social connectivity gained from offline interactions and that obtained from Facebook. The results showed that social connectivity on Facebook is different from offline interactions; in fact, the levels of social connectedness on Facebook are similar to those observed in younger groups. This implies that Facebook can effectively close age-related social divides. The study calls for more research to understand the

mechanisms underlying Facebook's positive effects and underlines the platform's potential to improve social capital and well-being among older adults.

Cutler, Hicks, and Innes (2016) , in their study "Does Digital Gaming Enable Healthy Aging for Community-Dwelling People with Dementia? , identified if digital gaming could promote healthy aging in people with dementia who live in communities which was published in Games and Culture. The study assesses tech clubs that use devices such as Apple iPads, Nintendo Wii, and Nintendo DS. Three primary advantages have been noted: 1) Holistic Stimulation, which provides cognitive, physical, and social engagement; 2) Lifelong Learning, which fosters mental agility and cognitive stimulation; and 3) Promotion of Independence, which permits pleasurable, intellectually stimulating activities. The research indicates that by addressing several requirements at once, digital gaming can improve dementia care. It also suggests using technology-based therapies to improve health outcomes and quality of life.

Morris et al. (2014) in their study , how smart devices can improve social interaction for senior citizens who are housebound and independent. They discovered that smart technologies, such as customized internet applications, had a good effect on social support, decreased isolation, and lessened loneliness after analyzing studies from 2000 to 2013. The majority of the eighteen studies that were examined showed that these technologies improved social connectivity and helped manage health in an effective way to supplement traditional aged-care services. The evaluation ends with a request for additional research to create marketing, promotion, and implementation strategies for smart technologies in order to optimize their advantages for the elderly population.

Oppert et al. ,(2014),in their study titled “Virtual Tour Technology to Reduce Social Isolation in Older Adults: A Pilot Study.” to investigate the potential benefits of virtual tour technology in lowering social isolation and loneliness in older individuals who live independently. The study, which included ten participants, employed a triangulation strategy using feedback, experiences, and interviews. The results showed that participants, who reported moderate levels of loneliness, were amenable to leveraging digital technologies to improve their everyday life

management and social contacts. They reacted favorably to the virtual tours, expressing interest in continuing to utilize them and appreciating the encounters. The study did, however, highlight the need for more investigation to determine how well virtual tours can foster social relationships. It came to the conclusion that although virtual tourism has the potential to improve well-being, further research and educational initiatives are required to completely comprehend and maximize its effects.

Cornejo, Tentori, and Favela (2013), in their study *The impact of social networking sites (SNSs) on in-person interactions and familial connectedness among older persons*. They presented Tlatoque, a system that integrates SNSs into the home environment, in their study, which was published in the **International Journal of Human-Computer Studies**. Tlatoque supported offline family relationships by enhancing conventional communication channels like phone calls and visits during a 21-week deployment with 30 older persons. The results showed that SNSs strengthened social networks and increased connectivity by enriching in-person interactions. The study showed how digital technologies can strengthen and sustain family ties, indicating that SNSs can enhance face-to-face contact for older persons rather than take the place of it.

Goswami et al. ,(2010), in their study *,Examining the Impact of Social Networking on the Internet for Senior Citizens'* investigate how social networking on the internet can improve support and social interaction among senior citizens. The study closes a gap by concentrating on the needs of older persons, in contrast to research that usually focuses on younger demographics, acknowledging that older adults frequently experience increased social marginalization. It looks at how older persons' use of the internet enhances their relationships with others and their quality of life, and it pinpoints platform characteristics that meet their particular social demands. The study intends to contribute to tactics that optimize social networks to better support this age group by offering insights for creating online settings that encourage meaningful interactions for the elderly.

Thach, Lederman, and Waycott ,(1998) in their study titled, *Collaborative Learning and*

Educational Technology,” examined 14 research involving devices such as tablets and telepresence robots, in a systematic analysis of the use of videoconferencing among older individuals in residential aged care (RAC) settings. Although the review revealed that most older individuals had a positive perception of videoconferencing and considered it as a means of improving social connections, it also revealed a number of practical issues. These difficulties included differences in user experiences and technical capacities, which highlighted the necessity for solutions designed with older persons' unique requirements in mind. The paper advocates for more research to enhance these tools for boosting social well-being in older individuals and makes recommendations for RAC providers to increase the sustainability and efficacy of videoconferencing technologies.

CONCLUSION

The research study titled "Digital Adaptability and Virtual Connectedness Among Silver Surfers" highlights the significant influence that digital technologies have on older persons, sometimes known as "silver surfers." Together, the studies show that there is a growing understanding of the possible advantages and difficulties that come with digital involvement .

The literature consistently highlights the important role that technology plays in improving older individuals' social connections and decreasing their feelings of isolation. Innovations that have the potential to close the gap between in-person and virtual interactions—like wearable technology, social networking platforms, and virtual reality—are emphasized because they can enhance seniors' quality of life and feeling of community by bridging this gap.

Research indicates that although older persons encounter particular difficulties when adjusting to digital technologies—such as problems with usability, accessibility, and digital literacy—these tools also have a significant chance of fulfilling their social and emotional requirements. Social networking sites and virtual tours, for example, can help reduce loneliness by preserving and enhancing relationships with family and friends; digital health solutions and smart home technologies, on the other hand, can provide better assistance for independent living and health management.

But the research also identifies a number of important areas that need more investigation. These include tackling the digital gap, making sure that technology deployment is ethical, and designing user-friendly interfaces that are specifically adapted to the needs of older persons. In summary, virtual connectivity and digital adaptation offer a promising new frontier for improving the quality of life for senior citizens. Policymakers, designers, and researchers can ensure that technological advancements are effectively leveraged to support and enrich the lives of silver surfers by emphasizing inclusive and user-centered approaches. This will ultimately foster greater social integration and well-being in an increasingly digital world.

CHAPTER III

METHODOLOGY

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. It involves describing, explaining, and predicting phenomena in order to solve a problem. The research methodology comprises aspects such as research designs, target population, sample size and sampling procedure, data collection instruments and data analysis procedure. It is necessary for the researcher to know not only the research methods/techniques but also the methodology.

(Kothari, 2004).

Research Design

Research design is the detailed plan of the investigation. In fact, it is the blueprint of the detailed procedures of testing the hypotheses and analysing the obtained data. Research design, thus, may be defined as the sequence of those steps taken ahead of time to ensure that the relevant data will be collected in a way that permits objective analysis of the different hypotheses-formulated with respect to the research problems. Thus, research design helps the researcher in testing the hypotheses by reaching valid and objective conclusions regarding the relationship between independent and dependent variables. The selection of any research design is obviously not based upon the whims of the researcher, rather it is based upon the purpose of the investigation, and types of variables and the conditions in which the research is to be conducted (Singh 2019). The study adopts a quantitative research design to investigate how perceived parenting style affects imposter phenomenon among adolescents . A quantitative research method deals with quantifying and analysis of variables in order to get results. Williams (2011) remark that quantitative research starts with a statement of a problem, generating of hypothesis or research question, reviewing related literature, and a quantitative analysis of data. Similarly, (Creswell 2003; Williams, 2011) states, quantitative research “employ strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistical data”.

Participants

The data were drawn from a sample of 123 older adults of age 55 and above. The samples were selected using convenience sampling and data was collected through both offline and online mode.

Tools used for data collection Variables:

The variables in the current study are digital adaptability, and virtual connectedness. In the present study a newly developed self-made scale was used to assess digital adaptability and virtual connectedness.

The following scale was used to measure digital adaptability :

DIGITAL ADAPTABILITY SCALE

The 10-item Digital Adaptability Scale is a self-created instrument meant to evaluate the adaptability of the "Silver Surfer" demographic—older persons who are using digital technology more and more. This measure assesses their aptitude for picking up and using new digital tools, adapting to changes in technology, and incorporating digital solutions into their everyday life. Every item is designed to capture different facets of older persons' interactions with technology, such as their comfort level with online platforms, their capacity to use digital devices to solve problems, and their desire to adopt new technologies. It allows senior citizens to self-report on their own digital experiences and difficulties. This measure offers a useful window into how well older populations handle digital transitions, which is important given their increasing need for digital flexibility. Expert examination of the scale revealed strong face validity, and its Cronbach's alpha of 0.796 indicated dependable internal consistency. It is particularly crucial to comprehending how the population of Silver Surfers makes their way through the increasingly digital environment.

Reliability and Validity

Cronbach's alpha was used to evaluate the validity and reliability of the digital adaptability scale, and the result was a score of 0.796. The scale's items appear to be tightly related and provide a reliable measurement of the construct, indicating a moderate to high level of internal consistency. To ensure that the items accurately and fully represented the notion of digital adaptability, expert assessment was conducted to establish face validity. The scale items are in good alignment with traits and actions linked to digital environment adaptation, according to the experts' confirmation.

Scoring

The digital adaptability scale consists of 10 items. It is a five-point Likert scale with response category as Strongly Agree (1), Agree (2), Neutral (3), Disagree (4) and Strongly Disagree (5). All the items in the scale are worded positively and scored 1 to 5 .

VIRTUAL CONNECTEDNESS SCALE

The 10-item Virtual Connectedness Scale is a self-created instrument intended to gauge older adults'—more especially, the "Silver Surfer" population'—feeling of connectedness in virtual settings. With the increasing number of older people interacting online through social media, video conversations, or online forums, this measure evaluates their sense of engagement and connection in these digital environments. The questions cover a range of topics related to virtual connectedness, including the quantity and caliber of online communication, the emotional intimacy of virtual contacts, and the capacity to sustain significant connections via digital platforms. This scale's self-report structure enables older persons to consider their own experiences with virtual connectivity, which is important because a growing number of them rely on digital tools to maintain their social lives. With a Cronbach's alpha of 0.823, the scale has shown strong internal consistency. Expert evaluation verified the face validity of the items, confirming that they accurately reflect the essence of virtual connectivity for this demographic.

Reliability and Validity

With a Cronbach's alpha of 0.823, the virtual connectedness scale showed strong validity and reliability. This shows that there is a high degree of internal consistency between the scale's components, suggesting that the measure of the construct is accurate. Expert judgment was utilized to confirm the face validity of the scale questions. The evaluation process involved determining whether the items adequately captured the notion of virtual connectedness, meaning they seemed appropriate and pertinent for capturing an individual's sense of connectedness in virtual environments.

Scoring

The virtual connectedness scale consists of 10 items. It is a five-point Likert scale with response category as Strongly Agree (1), Agree (2), Neutral (3), Disagree (4) and Strongly Disagree (5). All the items in the scale are worded positively and scored 1 to 5 .

Personal Data Sheet

To collect the sociodemographic details of the participants a personal data sheet was provided which included the variables such as name, age, gender, education level, occupation, retirement status, income level, location, duration of internet use (daily basis).

Informed Consent Form

An informed consent form which includes the terms of confidentiality and the purpose of the study was given to the participants to ensure their voluntary participation in the study.

Procedure for Data Collection

Data is collected through online as well as offline mode. Participants are selected conveniently. Consent is obtained from each participant to ensure their voluntary participation. Participants are provided with the questionnaires and instructed to carefully read the instructions. They are requested to provide honest responses and complete all items of the questionnaires. After participants finish the questionnaires, they are asked to submit their responses and the responses obtained via mail.

Ethical Considerations

Ethical guidelines will be followed throughout the study to protect the rights and wellbeing of the participants. Confidentiality of data will be maintained, and participants will be assured that their personal information will remain anonymous and confidential.

Statistical Techniques used for Data Analysis

The collected data underwent rigorous statistical analysis to examine the relationships and comparison between the variables of interest. The following statistical techniques were employed to derive meaningful insights .

Normality testing : Shapiro wilk test was used to test the normality of the population. The

Shapiro-Wilk test is a widely used statistical test that helps determine whether a dataset follows a normal distribution, a key assumption in many statistical analyses. The test is particularly useful when the normality of a population is in question, as it provides a way to assess whether the sample data significantly deviates from normality. The test evaluates the null hypothesis that the sample comes from a normally distributed population by calculating a *W* statistic and a corresponding *p*-value. The *W* statistic measures how closely the data fits a normal distribution, while the *p*-value indicates the likelihood that the observed data could occur if the population were normally distributed.

Correlation Analysis: Spearman rho correlation analysis was conducted to assess the relationship between perceived parenting styles and imposter phenomenon. This analysis quantified the strength and direction of the relationships between these variables, shedding light on their interconnections.

Comparison of mean: The Mann-Whitney U test, also known as the Wilcoxon rank-sum test, is a non-parametric statistical test used to compare the differences between two independent groups when the assumption of normality is not met. In this context, the Mann-Whitney U test was employed to compare the mean ranks of a particular variable across different genders to determine whether there is a statistically significant difference between them.

This test works by ranking all the data points from both groups together, then comparing the sum of the ranks between the two groups. Unlike the *t*-test, which compares means, the Mann-Whitney U test focuses on the medians and the rank order of the data. It does not require the assumption of normally distributed data, making it suitable for data that is skewed or ordinal. The result of the test is a *U* statistic, which is then converted to a *p*-value.

All statistical analyses were carried out using appropriate software, ensuring accuracy and reliability. A significance level of $p < 0.05$ was adopted to determine statistical significance, providing a rigorous standard for evaluating the results.

CHAPTER IV

RESULTS AND DISCUSSION

The present study evaluated the relationship between digital adaptability and virtual connectedness in a sample of silver surfers . A total of 123 samples were selected and the variables of interest namely digital adaptability and virtual connectedness phenomenon were measured using self-made scale . For the purpose of data analysis, Shapiro wilk test was used to test the normality of the population. Since the data is not normally distributed suitable non parametric tests were used for further analysis using appropriate software, ensuring accuracy and reliability. The results obtained in the study have been presented in the tables and the results are discussed with respect to objectives and hypotheses.

Table 4.1: Test of normality

Shapiro wilk test S

	STATISTICS	DF	SIGNIFICANCE
DIGITAL ADAPTABILITY	.775	123	.000
VIRTUAL CONNECTEDNESS	.783	123	.000

The Shapiro-Wilk test was used to determine whether the data distribution for the variable "Digital Adaptability" was normally distributed. With a p-value of 0.000, the test yielded a statistic of 0.775, below the standard alpha threshold of 0.05. There is a notable departure from normalcy in this finding. Put differently, the sample of older adults (silver surfers) does not have a normal distribution for the distribution of digital adaptation scores. This result is significant because it supports the need for additional statistical analysis using non-parametric tests like the Mann-Whitney U test and the Spearman's rho correlation analysis. The presence

of outliers, the innate traits of the population, or a skewed distribution of digital adaptation levels are some possible explanations for the non-normality.

It is not unexpected that older individuals' digital adaptation scores could not be regularly distributed given that they are a diverse population with differing degrees of experience and comfort with digital technologies.

Table 4.2 : Correlation analysis

SPEARMAN'S RHO	DIGITAL ADAPTABILITY
VIRTUAL CONNECTEDNESS	.785**

The association between older individuals' virtual connectivity and digital adaptation was investigated using the Spearman's rho correlation analysis. A strong positive association between the two variables is indicated by the correlation coefficient ($r = 0.785$). This implies that virtual connectivity tends to rise along with increased digital adaptability and vice versa. The statistical significance of the association is indicated by the significance value ($p = 0.000$), which is less than the standard alpha threshold of 0.01.

This robust positive link implies that older persons who feel more connected in virtual settings are also more likely to be more adept and adaptive digital technology users. The aforementioned link underscores the significance of digital competencies in cultivating social bonds among senior citizens, who could depend on virtual communication to sustain relationships, particularly in situations where in-person interactions are restricted.

Table 4.3 : Comparing mean differences in gender

Variable	Gender	N	Mean	SD	STD.Error Mean
Digital adaptability	Male	62	58.05	7.101	0.899
	Female	61	66.02	7.101	0.908
Virtual connectedness	Male	62	60.49	7.773	0.987
	Female	61	63.53	7.773	0.995

Gender-specific virtual connectivity and digital adaptation are examined in this investigation. Analytical data reveals that there is an equal distribution of genders in terms of moderate digital adaptation (mean = 22.38) and somewhat higher virtual connectedness (mean = 23.40). Comparing median scores between genders is done using the Mann-Whitney U test. It is found that women report mean scores higher than men (58.05 and 60.49, respectively) for both virtual connectivity (63.53) and digital adaptability (66.02). Still, neither gender-specific difference in either measure is statistically significant ($p > 0.05$) according to the results of the MannWhitney U test. In conclusion, gender is not a major predictor of digital adaptation or virtual connectivity, even though women report higher levels in both categories. These differences are not statistically significant.

Table 4.4 Mann-Whitney U test for location

Variable	Group	Mean Rank	Mann-Whitney U	Z	p-Value
Digital adaptability	Urban	46.00	405.000	-2.081	0.037
	Semi-Urban	62.00			0.030
Virtual Connectedness	Urban	45.88	395.000	-2.175	
	Semi-Urban	62.63			

The study looks at location-based virtual connectivity and digital adaptation. Descriptive statistics show a moderate level of digital adaptation and a somewhat greater virtual connection (mean = 22.38 and 23.40, respectively). The sample consists of participants from both urban and semi-urban areas. Using the Mann-Whitney U test, significant geographical inequalities are demonstrated. The mean ranks of respondents from semi-urban areas are higher than those from metropolitan areas (46.00 and 45.88, respectively) for virtual connection (mean rank = 62.63) and digital flexibility (mean rank = 62.00). The test findings show that there are statistically significant differences for both variables ($p < 0.05$). Lastly, participants who lived in semi-urban areas scored higher, suggesting that geography has an impact on virtual connectedness and digital adaptability. A closer examination of components peculiar to a given place may help to explain these variances.

Table 4.5 Mann- Whitney u test for retirement status

Variable	Group	Mean Rank	Mann-Whitney U	Z	p-Value
Digital Adaptability	Non-retired	56.93	455.000	-2.081	0.037
	retired	68.92			
Virtual connectedness	Non-retired	56.35	510.000	-1.897	0.062
	retired	69.71			

This study looks at digital flexibility and virtual connection in relation to retirement status. Descriptive results show modest digital adaptability (mean = 22.38) and slightly stronger virtual connectedness (mean = 23.40). Not every member of the sample is retired. The MannWhitney U test results showed that retirees scored higher on virtual connection and digital adaptation (69.71 and 68.92) than non-retirees (56.35 and 56.93, respectively). The test finds a statistically significant difference on digital adaption ($p = 0.037$) but not on virtual connectedness ($p = 0.062$). Retirement has a significant impact on digital adaption; those who have retired typically score higher, probably due to increased time or technology usage.

The lack of statistical significance for the difference in virtual connectedness may point to the involvement of other factors.

Table 4.6 Kruskal-Wallis Test – Education

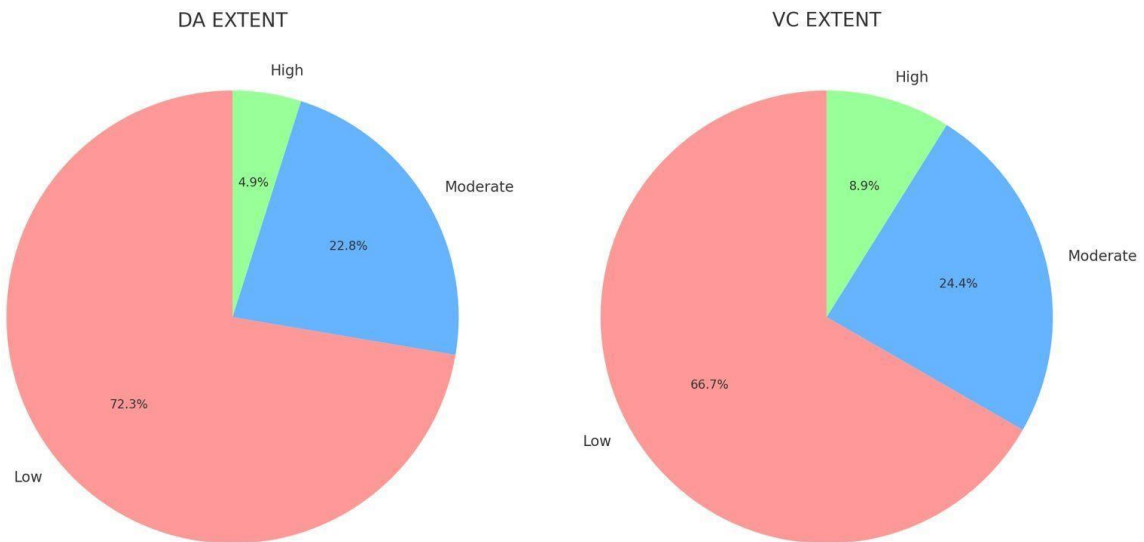
Education level	Mean Rank (digital adaptability)	Mean Rank (virtual connectedness)	Chi-square	p-Value
SSLC	49.86	53.30		
PLUS TWO	61.46	64.90		
UG	81.28	69.03		
PG	69.29	68.08		
Phd	63.00	68.63	12.873	0.012
TOTAL			4.831	0.305

According to educational achievement, the study examines digital adaption and virtual connectivity. The majority of respondents(38.2%) have an SSLC degree, which is followed by plus two (19.5%), UG (16.3%), PG (19.5%), and Ph.D. (6.5%). The Kruskal-Wallis test results for SSLC (49.86), plus two (61.46), UG (81.28), PG (69.92), and Ph.D. (63.00) show that improved educational attainment is linked to better digital adaptability. The significant ($p = 0.012$) Chi-Square test for digital adaptability indicates that education has an impact on digital adaptation. Although the difference in mean rankings for virtual connectivity is not statistically significant ($p = 0.305$), it does exist. The study comes to the conclusion that whereas postsecondary education improves digital agility, it has no appreciable effect on virtual connection. This suggests that other factors may affect people's subjective impressions of virtual connectivity.

Table 4.7- DA EXTENT AND VC EXTENT

EXTENT	DA FREQUENCY(%)	VC FREQUENCY (%)
LOW	89(72.4%)	82(66.7%)
MODERATE	28(22.8%)	30(24.4%)
HIGH	6(4.9%)	11(8.9%)
TOTAL	123(100%)	123(100%)

PIE CHART OF THE DA EXTENT AND VC EXTENT



When it comes to DA (Digital adaptability), 72.4% of participants fit into the "Low" group, meaning that a sizable majority only have minimal experience with DA. This indicates that most people only report mild symptoms of DA, indicating that the majority of people do not

suffer DA to a considerable degree. On the other hand, DA is experienced by 22.8% of participants at a "Moderate" level, indicating that a smaller but significant fraction of the group has DA at a mid-range level. The fact that just 4.9% of participants are classified as "High" suggests that only a tiny percentage of people have high levels of DA. Overall, the evidence suggests that among the individuals, high levels of DA are rather uncommon.

Virtual connectedness, or VC, is reported by 66.7% of participants to be experienced to a modest degree; this is slightly lower than the rate for DA but still accounts for a sizeable section of the population. Furthermore, 24.4% of the participants report having "Moderate" VC experiences, indicating that almost 25% of the group has mid-level VC. But a noteworthy 8.9%, which is a higher percentage than individuals with high levels of DA, fall into the "High" VC category.

In summary, there is a discernible variation in the distribution of high levels, even if both DA and VC indicate that most participants report low extents of these conditions. In particular, a higher percentage of people report having high VC levels than high DA levels. This implies that, in comparison to DA, VC may be a more widespread or pressing worry within the group.

Table 4.8 : Hypothesis test summary

NULL HYPOTHESIS	TEST	SIG	DECISION
The distribution of digital adaptability is the same across categories of gender	Independent samples Mann-Whitney U test	.208	Retain the null hypothesis.
The distribution of virtual connectedness is the same across categories of gender	Independent samples Mann-Whitney U test	.632	Retain the null hypothesis.

The results of the Mann-Whitney U test are supported by the summary of the hypothesis test. The p-values for virtual connection and digital adaptability, which are 0.63 and 0.208, respectively, above the standard alpha threshold of 0.05, show that these factors do not differ statistically significantly between gender groups. The choice to maintain the null hypothesis for both variables implies that among older persons, gender has no bearing on virtual connectedness or digital adaptation.

This absence of gender disparity is especially significant when it comes to encouraging older individuals to use the internet. It implies that treatments meant to improve virtual connectivity and digital abilities can benefit both men and women in the same way. This result is consistent with larger patterns in technology use, which show that as digital tools become more commonplace in daily life across all demographic groups, gender disparities in their use have been decreasing.

CHAPTER V

SUMMARY AND CONCLUSION

The aim of the current study was to examine the relationship between digital adaptability and virtual connectedness among silver surfers. The sample size of the present study was 123 older adults, both males and females with age ranging from 55 and above, selected using the convenience sampling technique. To measure the variables of interest, self-made scale was used. Informed consent and personal data sheet are also collected from the selected participants. After data analysis, non-parametric tests such as Mann-Whitney U test and Spearman's rho correlation method are used for the statistical analysis of the data. The results obtained by the analysis are discussed comprehensively with respect to objectives and hypotheses.

The research focused on understanding the relationship between digital adaptability and virtual connectedness among silver surfers. Given the non-normal distribution of most variables, nonparametric statistical methods were employed, ensuring the robustness of the findings.

The connection between virtual connectedness and digital adaptability were found to be strongly positively correlated by the study, with a correlation value of $R = 0.785$ and a significance level of $P = 0.000$. This suggests that older persons with higher degrees of virtual connectivity are also typically more proficient users of digital technologies. In other words, people who are adept at using digital tools and platforms are also more inclined to participate actively in social media interactions online. This research emphasizes how crucial digital skills are for preserving and strengthening social ties in a virtual setting. This is especially important for older persons, who could depend on digital means of communication to stay in touch with friends and family.

Retirement Status's Effect According to the study, there was a statistically significant difference ($p = 0.037$) in the digital adaptability scores of retired individuals and non-retirees. This implies that people may have more time after retirement to interact with and become accustomed to digital technologies. Retirees may be more digitally savvy due to their longer retirement periods and growing emphasis on digitally savvy personal pursuits. The fact that retirees reported higher levels of virtual connectedness did not statistically significantly differ from the general

population ($p = 0.062$), suggesting that factors other than retirement status may also have an impact on virtual connectivity.

Impact of Academic Performance Digital adaptability was found to be significantly influenced by educational achievement. The findings of the Kruskal-Wallis test showed that participants with higher educational levels had superior digital adaptation ($p = 0.012$). This implies that one's educational background affects their capacity to use digital technologies efficiently, probably because education imparts both technical and cognitive skills. While schooling improves digital skills, it may not always transfer into better levels of virtual social interaction. In contrast, educational success did not have a statistically significant effect on virtual connection ($p = 0.305$).

Differences in Gender, There were no discernible gender differences in either virtual connectedness or digital adaptation, according to the study. Despite slightly higher levels of virtual connectedness and digital adaptability reported by women, these differences were not statistically significant ($p > 0.05$). This finding implies that among older persons, gender is not a significant factor in determining digital abilities or virtual involvement. Gender differences in technology use have decreased as digital technologies are incorporated more into daily life, which supports the idea that programs to improve digital skills can benefit men and women equally.

Regional Difference It was discovered that virtual connectedness and digital adaptability are influenced by geographic location. There were statistically significant ($p < 0.05$) differences in the scores of participants from semi-urban areas and metropolitan areas on both measures. The former group scored higher. This implies that, in comparison to their metropolitan counterparts, residents of semi-urban locations could have varying degrees of access to digital resources or distinct usage habits for technology. The better scores in semi-urban areas may be attributable to regional elements like neighborhood initiatives or online support networks that encourage online participation, underscoring the necessity of customized interventions depending on regional context.

In brief Overall, the results show that among older persons, digital adaptation and virtual connection are strongly correlated, with retirement status and educational background having a major impact. Geographical location influences digital and virtual results, but gender does not seem to have a substantial impact on digital skills or virtual involvement. These findings

highlight the value of focused digital literacy initiatives and offer new research directions to help comprehend and address the variables affecting older adults' use of digital media.

Major Findings and Conclusions

- Digital adaptability and virtual connectedness were found to have a substantial positive connection ($r = 0.785$, $p = 0.000$), suggesting that older persons who are more proficient with digital technologies also tend to be more linked virtually.
- Retirement may allow people more time or motivation to use digital technology, as evidenced by the fact that retired people scored higher on digital adaptation ($p = 0.037$) than non-retirees. Based on retirement status, virtual connectivity did not exhibit a statistically significant difference ($p = 0.062$).
- Better digital adaptation is correlated with higher educational attainment ($p = 0.012$). On the other hand, there was no statistically significant relationship between educational attainment and virtual connectedness ($p = 0.305$).
- There were no discernible gender disparities in terms of virtual connectivity or digital adaptability. Despite the fact that women reported somewhat greater amounts, there was no statistically significant difference ($p > 0.05$).
- Compared to participants from metropolitan areas, semi-urban area participants scored higher on both digital adaptability and virtual connectivity. The statistical significance of these variations ($p < 0.05$) suggests that there are implications from geography on digital and virtual engagement.
- Since the sample's digital adaptability scores were not normally distributed, nonparametric statistical techniques were employed for the analysis.

Implications of the Study

The findings of this study have several important implications for both the academic community and practitioners involved in supporting older adults' digital engagement.

The study's conclusions have a number of significant ramifications for practitioners and academics who assist older persons in their digital involvement. Firstly, the significance of developing digital skills in older persons is highlighted by the strong positive link between

virtual connectedness and digital adaptability. The probability of older persons feeling linked in virtual spaces is positively correlated with their digital adaptation, and this is important for their social well-being. This means that organizations that engage with older persons should prioritize programs that aim to improve digital literacy, especially in this day and age when digital communication is becoming more and more important. The significance of digital skills for sustaining social relationships among older persons is shown by the substantial correlation observed between virtual connectivity and digital adaptability. Enhancing one's digital skills through programs may help to improve virtual interactions.

Two key components of digital adaptation are retirement status and educational attainment. Digital skill development interventions may be especially beneficial for individuals who are not retired and have less education.

The regional discrepancy emphasizes the necessity of focused digital literacy initiatives that cater to the unique requirements of various settings, particularly in semi-urban areas.

Gender does not greatly affect virtual connectivity or digital adaptation, therefore programs for digital literacy can be created without taking it into account. Secondly, it is interesting that there are no substantial gender disparities in terms of virtual connectedness and digital adaptation. It suggests that initiatives to promote digital inclusion should not be gender-specific but rather concentrate on giving all older persons equal access to technology and training opportunities. Policymakers and service providers can use this information to create inclusive digital literacy initiatives that meet the requirements of older men and women.

Finally, the study adds to the larger conversation about technology and aging by demonstrating that, in contrast to some ageist presumptions, older persons are capable of interacting with and adapting to digital settings. This optimistic view of aging and technology use has the potential to change public attitudes and promote more welcoming and encouraging approaches to digital inclusion.

Limitations of the Study

While the study offers valuable insights, it is important to acknowledge its limitations:

- **Sample Size and Diversity:** The 123 participants in the study may have limited how far the results can be applied. Furthermore, it's possible that the sample's diversity in terms

of geography and educational background does not accurately reflect the whole population of older adults.

- **Instruments of Measurement:** The study employed a self-created scale to assess virtual connection and digital adaptability. Although this strategy was required due to the study's design, the reliability of the findings may be impacted by the scales' lack of formal validation.
- **Cross-Sectional Design:** This type of research takes a snapshot of the population at one particular point in time. Further information about the evolution of digital adaptability and virtual connectivity may be obtained from longitudinal studies.

Suggestions for Further Research

Future research could build on this study by addressing its limitations and exploring new areas:

- **Greater Sample Size and Diversity of Locations:** To increase the generalizability of the results, future research should strive for a larger and more varied sample. Expanding the geographic scope of the analysis may also yield more thorough insights.
- **Longitudinal Studies:** Studying how digital adaptation and virtual connections evolve over time, particularly in connection to major life events like retirement, may be accomplished by doing longitudinal studies.
- **Validation of Measurement instruments:** To make sure that the measurements used to evaluate virtual connection and digital adaptability appropriately represent these characteristics, further study should be devoted to evaluating and improving these instruments.
- **Examine Other Factors:** Look into other factors, such as socioeconomic position, health issues, or particular technological challenges that older persons confront, that may have an impact on digital adaptability and virtual connectivity.

This study has laid a foundation for understanding the relationship between digital adaptability and virtual connectedness among older adults. As the population of silver surfers continues to grow, ongoing research in this area will be critical in ensuring that older adults can fully participate in and benefit from the digital world.

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APPENDICES

INFORMED CONSENT FORM

Study procedure

I will provide thorough explanations of the study's intricacies and furnish two sets of questionnaires pertaining to digital adaptability and virtual connectedness. Your genuine responses to each question are requested, and please don't hesitate to ask if any uncertainties arise.

Risks and Inconveniences

There are no major risks involved in the study .however there are minor risks and inconveniences which are listed below. The study altogether may take upto 15 minutes , might find certain questions hard to comprehend.

Benefits

By participating in this study, you will not have any direct benefit. Your participation will contribute to scientific knowledge.

Confidentiality

If any reports or publications result from this study, no information will be revealed that will permit readers to identify you. If you would like to know the results of the study or your individual results on any of the measures, I would be happy to reveal them to you after the data has been completely analysed. All the information obtained in this study will be kept confidential to the extent permitted by the law.

Voluntary Participation

You are free to choose not to participate. If you choose to participate you are free to withdraw from the study at any time without giving any reason.

Questions

Please feel free to ask about any terms you don't understand. Undertaking by the investigator Your consent to participate in the above study byis sought. You have the right to refuse consent or withdraw the same during any part of the study without giving any reason. The information you provide will be stored and maintained safely and confidentially. The data will

be used solely for research purposes . Results will be published as dissertation and may be presented in academic conferences or published in scientific journals, without identifying the participants. If you have any doubts about the study, please feel free to clarify the same. Name

Sign

Personal Data Sheet Name

/ Initials :

Age :

Gender :

Education level :

Occupation :

Retirement Status :

Income Level (annual) :

Location :

Duration of internet use (daily basis) :

QUESTIONNAIRES

DIGITAL ADAPTABILITY SCALE

Please read all the questions given below carefully and mark your responses . 1=

Strongly agree , 2= Agree , 3= Neutral , 4= Disagree , 5=Strongly disagree

1. I feel confident in my ability to learn and use new digital technologies.
2. I adapt quickly to changes in digital interfaces or software.
3. I actively seek out opportunities to improve my digital knowledge and skills.
4. I am comfortable interacting with others online through various digital platforms.
5. I find digital activities such as online shopping or banking convenient and accessible.
6. I perceive digital technology as a valuable resource for staying connected with others.
7. I feel empowered by my ability to troubleshoot and resolve digital issues independently.
8. I enjoy learning about new digital trends and incorporating them into my daily life.
9. I see digital technology as a means to enrich my hobbies or interests.
10. I am motivated to continuously improve my digital skills for personal growth.

VIRTUAL CONNECTEDNESS SCALE

Please read all the questions given below carefully and mark your responses .

1= Strongly agree , 2= Agree , 3= Neutral , 4= Disagree , 5=Strongly disagree

1. I feel emotionally supported by the relationships I maintain through digital platforms.
2. I enjoy interacting with others online and feel a sense of camaraderie.
3. I feel connected to a community or group of people through digital channels.
4. I actively seek out opportunities to engage with others through virtual means.
5. I feel comfortable expressing myself and sharing experiences online.
6. I believe that digital interactions are as meaningful as face-to-face interactions.
7. I appreciate the sense of belonging I experience through online communities.
8. I find that my online connections help me stay connected with current events and trends.
9. I enjoy participating in virtual events or activities with others.
10. I feel enriched by the diversity of perspectives and experiences shared online.

