Computer Skills and Quality of Life for Rural Seniors

Posted on January 27, 2020

Chapter 2: Literature Review

The purpose of this research project is to examine the outcomes of a computer program to increase technology skills and access for senior citizens in rural areas to improve their quality of life. Information communication technology (ICT) connects people, generates more trade in goods and services across the globe, and increases access to information and knowledge (Odton & Weerachart, 2014). With the increase of longevity for senior citizens well past their retiring years, there are many fruitful years for senior citizens to participate in life-learning activities such as the utilization of the computer, Internet, and socialization via social media (Hongthong, Somrongthong, and Ward, 2015). There is no question that the Internet is a huge boom for the economy and society, but maximizing its potential is only possible if all individuals are online (Newcombe, 2016). If all individuals are to be involved in cyberspace, there is a need to include senior citizens who are in their sixties and over. Consequently, older people in rural communities increasingly rely on the Internet to access essential health, finance, education, and other social services (Hodge, Carson, and Newman, 2016).

Within the parameters of this research, three research questions were created and will be addressed through this research. The devised questions that will be addressed are: how does the reported quality of life (QoL) change as a result of participation in a program targeted toward improving Internet access and skills? How do the reported technology skills and use of rural senior citizens change as a result of participation in a program targeted towards improving Internet access and skills? How do rural senior citizens perceive their experiences learning Internet skills as a result of participation in a program targeted towards improving Internet access and skills, and what recommendations do they convey for improving the program? Without successful programs targeting access and the development of skills in rural communities and an understanding of their outcomes, the potential for technology to serve the needs of this population will remain unrealized (Skerratt et al., 2012; Townsend et al., 2013).

In America, access to computer usage for active seniors ages sixty and over is limited (Pew Institute, 2013). However, according to Niehaves and Plattfaut (2014), information technology (IT) allows members of the growing elderly population to remain independent longer, which means there is less dependence on family members or healthcare facilities. Seniors are more likely to seek information from health portals for themselves and to communicate with others via the Internet and social media (U.S. Census Bureau, 2011). Seniors can access information concerning finance and other pertinent information if society can provide adequate access to computers and broadband connectivity

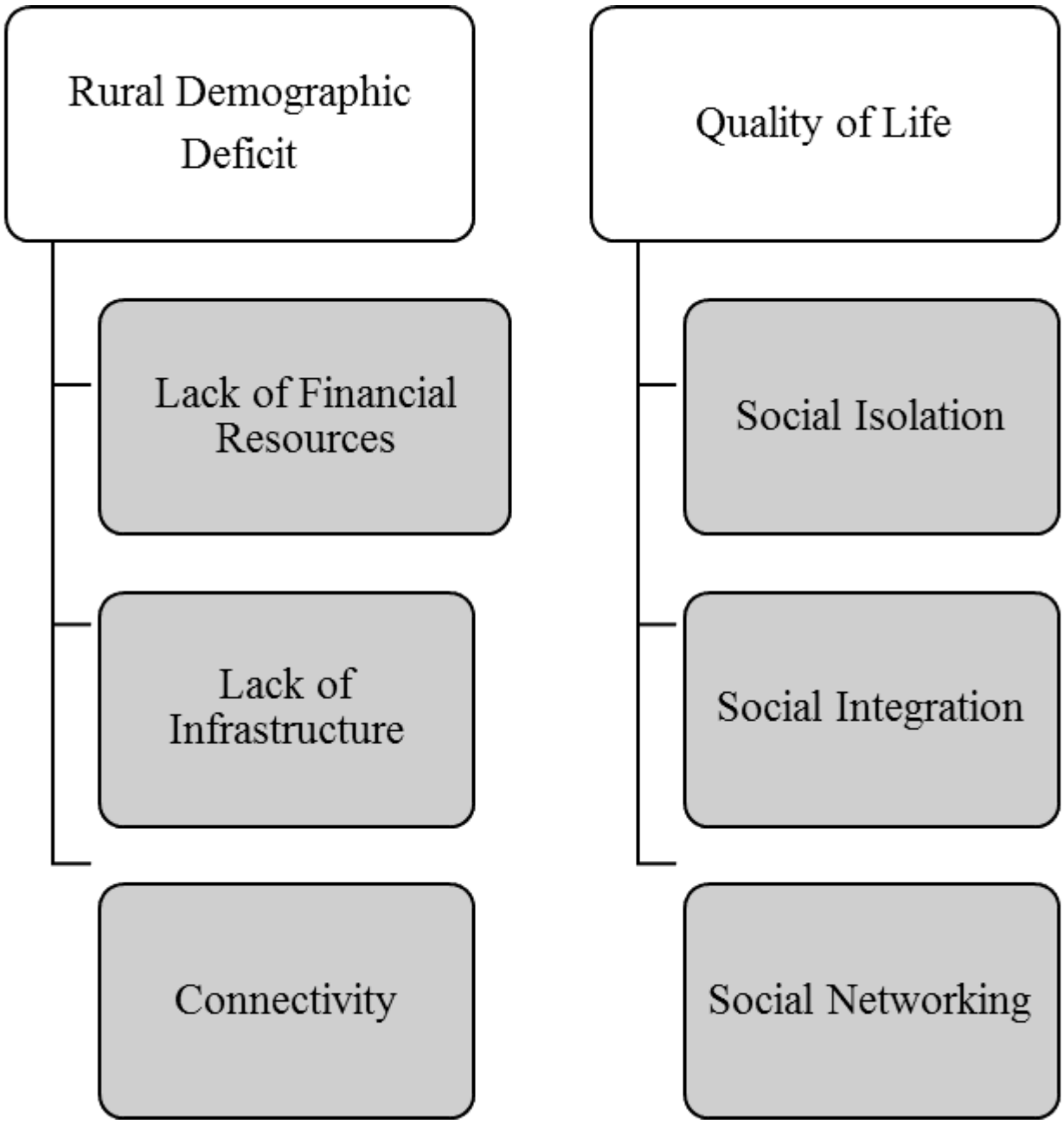
(Palsdottir, 2016).

Documentation

Articles presented in this review were published in the past five years; however, some older articles or sources provided necessary foundational or historical information. NorthCentral online library resources utilized include EBSCO HOST, ProQuest, Road Runner Search, Google Scholar, and Sage online journals. The initial research provided a plethora of peer-reviewed articles, dissertations, and books. However, much of the empirical research was bibliographically referenced or embedded in scholarly articles written by writers who had done extensive research in the area of Senior Citizens and Technology Usage in Rural Areas. The following keywords and phrases aided in researching the various documented sources: *quality of life (QoL), technology and senior citizens usage, rural deficits.*, *socialization of seniors, and Internet* access *for senior citizens*. Within this review is information from multiple writers who cited information from the conceptual theory of quality of life (QoL).

Researchers use literature reviews as an organized, topic-motivated understanding of existing literature conducted by practitioners and scholars (Lambert & Lambert, 2013).

Figure 1: Rural Technology



Rural Access to Technology: Demographic Deficit

Technological and demographic deficits in many rural communities in the United States are of epic importance, and the necessity for addressing this issue and how it affects the daily lives of elderly rural residents is paramount (Salemink, Strijker, and Bosworth, 2015). The need to address this issue is important because by maintaining a robust quality of life for senior citizens living in rural communities- life-long learning and longevity can be extended (McMurtrey, 2015). This is a position that researchers such as (Gonzalez, Ramirez, and Vidal, 2015) (Saldana, 2015, (West, 2015); Lenhart,2009, Purcell, Smith, & Zickuhr, 2010) support in their studies. There are some reasons why rural areas lack technology, such as the changing age population, the decline in employment in

agriculture, the diminished population, and the chronic out-migration of young adults (Carr & Kefalis, 2009). In rural communities, young adults tend to seek urban areas for educational and economic reasons.

However, participation in technology by senior citizens in these rural areas can enhance communication and afford optimal opportunities for seniors to personally engage online via the Internet to access essential health, finance, education, and social services information (Malecki, 2003; Strover, 2003; Velaga et al., 2012). However, due to the lack of infrastructure and the availability of technology, the implications for changing the modality for access for seniors in rural areas are slim (Newcombe, 2016). To many, the elderly population should spend their newfound free time in their gardens, making improvements to their homes, watching television, reading, thinking, eating, shopping, volunteering, sleeping, and corresponding with others. Senior citizens are often viewed as being unfamiliar with or unable to use new technologies (Brandon, 2015). However, according to a recent survey, 3,015 seniors feel very positive about technology (Pew Institute, 2013). This survey also delineated that these seniors were also interested in smartphones, the Internet, tablets, and social media. Approximately one-third of senior citizens want to spend time using the Internet; however, many seniors are reluctant to use the Internet because they have not had the exposure (Zheng, Spears, Luptak, & Wilby 2015).

More Read: Learn Malay for Kids

The senior citizens of the rural areas of the United States are interested in knowing about technology, but still, they are unable to get exposure or access to technology due to several demographic deficits. The reality behind this is that not only in the United States but also all over the world, people prefer to live in urban areas rather than rural areas. Due to the huge population in urban areas, a small investment in urban areas can be proven highly beneficial for the companies. That is why the companies which are involved in technical guidance and technology implementation invest their money in urban areas. Also, the companies are well aware that if they invest in urban areas, then due to the huge population, they will be able to have high revenue or great profit. This economic advantage to the companies makes them reluctant to take a step towards technological advancement in rural areas (Webb, 2013).

Information technology companies also face great challenges while starting or establishing their systems in rural areas. Firstly, they know that the population in the urban areas is less, and that is why they cannot have much profit as compared to the urban areas. Secondly, they face great infrastructure challenges in rural areas, and that is why they have to spend a lot of money to establish the system, wires, and many other things. Thirdly, the companies can also face social challenges because most of the people in rural areas are either not aware of the benefits of the technology or are not interested in knowing about technology. That is why some people consider that technology is the main reason for cultural destruction in society, and so they don’t let technology come into the rural areas (Webb, 2013).

Now technology has become an essential tool for success, and no part of the world, either urban or rural, can have development or advancement without the use of technology. In fact, nowadays, technology has become so common to people, in the form of mobile and computers, and so the use of technology is not as difficult as it was a few decades ago. Technology also plays an essential role in improving the sustainability of any State or country because it helps the people to groom in a better way. Moreover, technology has also connected people all over the world, and now, when the technology is developed in any city or area of the country, then that area becomes interconnected not only with the country but also with the whole world. However, the major issue that arises during the development of technology in rural areas is the establishment of broadcast arrangements in rural areas (Whitacre, 2016).

Broadcast development is an initiative towards exposure to the technologies because, without broadcast, the technology is difficult to use. It is the same as the one that has a mobile without signals. No, doubt that mobile phones, iPods, and computers help people to understand technology; however, these technologies require signals to work. Without signals, mobile phones are useless, and people cannot communicate with each other. Similarly, without broadcast signals, people are unable to use the Internet, and so they are unable to connect to the rest of the world. This means that broadcast development is essential, but still, the development of the broadcast system faces great challenges in rural areas (Webb, 2013).

The main reason for the difficulty in the broadcast installation in rural areas is that the companies do not prefer to take economic risks, and so they prefer to install new technologies in populated areas where they can have a great profit margin. It is obvious that when there are more customers, then it will be easier for the companies to get back their installation costs. Although millions of people still live in rural areas, there is a huge difference in the economic conditions of the family. Moreover, according to a rough estimate, around 2000 people live per square mile in urban areas, whereas in rural areas, the population is 100 people per square mile.

This means information technology is of great importance. With the passage of time, many advancements have been made in information technology, and so advanced information technology provides great facilities to the users of the technology. However, in rural areas, the companies do not invest most of their money or do not implement any advancements because of the expenditure and fewer customers. For example, when telecommunication companies switch the data traffic from copper lines to fibre optics to increase the data transfer rate and to provide high-technology facilities to the customers, then they prefer to implement this change only in urban areas. The reason is that the companies have to face a great expenditure while changing copper lines into fiber-optics, so laying new lines for the internet can be proven to be less beneficial for them in rural areas. Another problem that can be faced for the advancement in information technology signals is that the companies are established in urban areas, and to send the signals to long-distance locations, they require a signal amplifier, which may be proven as an expensive item for the companies. That is why companies prefer to avoid the installation of the technology in rural areas (Webb, 2013).

Lack of Financial Resources

Broadband is a necessity, not a choice, in municipalities like Iowa City, Iowa, which has 86% of its population connected and is considered 5th in the nation for broadband connectivity to households, and its constituents reap more economic and educational benefits. However, Iowa City is in contrast to small rural cities such as Malone, Florida, or Gretna, Florida, wherein the local governments cannot finance broadband connectivity, nor do they have the infrastructure to provide technology resources for their citizens (Newcombe, 2016). Findings from Weerachart & Odton (2014) suggest that household composition, education, wealth, and occupation are key factors in determining information and communication technology. Like this, rural communities are the least funded and least dependent on high taxes from community resources because of the dwindling population and thereby remain undiscussed and remain in the digital divide (Holt and Galligan, 2013).

Not only are there communication issues, but the people of rural areas are also facing great financial challenges in all fields of life. Technology is not only used for communication but is also used for education, healthcare, architecture, and many other fields. When it comes to education, due to the lack of commercial facilities, students are unable to be exposed to advanced technology (Drake, 2012).

Most of the people in rural areas belong to low-income households who can hardly afford the expenditures for their children's education. In fact, a large part of the rural population is still unable to get an education. In such circumstances, the children or the students can never think of having laptops, internet access, and iPods to get more knowledge. These students are still confined to using the already available resources in their school or college's libraries in the form of books and notes. The students in rural areas do not have many resources, but they do not have technology devices, so they don't know how to use these devices. However, nowadays, mobile has become a common technology device that is being used almost all over the world, but still, the people of rural areas are unable to understand the advanced techniques of mobile phones or smartphones.

This shows that financial conditions are also a hurdle in the way of educating people. Also, the people do not invest their money in schools and colleges in rural areas where the students can get a better education. The available schools are constructed on a simple design basis, and these schools do not provide many resources or knowledge about the technology. However, the focus of this study is the elderly population, and the research questions are: how does the reported quality of life (QoL) change as a result of participation in a program targeted towards improving Internet access and skills? How do the reported technology skills and use of rural senior citizens change as a result of participation in a program targeted toward improving Internet access and skills? How do rural senior citizens perceive their experiences learning Internet skills as a result of participation in a program targeted towards improving Internet access and skills, and what recommendations do they convey for improving the program? This means that the study must analyze the use of technology by senior citizens.

Here, the discussion of educational institutions is important because educational institutions are the

places that are not only providing education to children and adults but also to the whole population. Different educational institutions have been developed in urban and rural areas where people, especially senior citizens, are guided to use technology. In such institutions, the people are guided so well to use advanced mobiles and computers. They are guided to use the internet, MS Office, and other technology devices. Because senior citizens are unaware of the technology and everything is quite new for them, they are encouraged to go to the institutions to learn about technology and to have exposure to the advancement. However, in rural areas, again, finance becomes the hurdle and then makes the people unable to learn new things about technology.

It is for sure a matter that the people in the rural areas do not have enough resources to develop new technology institutions in the rural areas. They don't have enough money to buy computers and to have skilled staff. Most of the people from rural areas do not have much knowledge about technology, and the people from urban areas do not agree to work in rural areas due to the lack of facilities and lower wages. That is why even if the technology institution is developed, then the skilled staff or professional teachers are not available due to which the people cannot know technology. In fact, in some rural areas, the development of such technology institutions is impossible because either there are no financial resources or there is no Internet. For example, in Southwestern Virginia, there is no internet access, which causes people to have no idea what the internet is. In Southwestern Virginia, people have to get internet access by installing Dish TV, Direct TV, or having access to any satellite, which is an expensive choice. However, this is not only the case in Virginia but also in other rural areas too. The people have to choose expensive ways to get access to the internet, which is impossible for low-income families. Especially the senior citizens are not that rich because of their health issues. They either rely on their sons or the government to have monthly expenses, and in this case, how can they have access to Dish TV or Satellite? Finally, they enjoy other activities in life rather than using technology (Drake, 2012).

Connectivity

The world of technology has opened up great advances for societies across the globe. However, senior citizens are unable to fully enjoy what is offered as an opportunity in many urban cities for their senior citizens as opposed to senior citizens in rural areas (Lenhart, 2009; Lenhart, P., Smith, & Zickuhr, 2010). For example, an estimated 15 million Americans, primarily in rural communities, don't even have access to entry-level broadband in their homes. Forty-one per cent of America's rural schools couldn't get a high-speed connection if they tried (Wheeler, 2014). If the rural schools lack access to broadband, the community centres and local libraries are in a financial "deficit." The lack of connectivity to emerging technologies in rural areas has caused a "digital divide" (Juncos, Pereiro, and Facal, 2006). It is not only the emerging technologies that are needed but it is also interrelated with the social issues that rural communities face as a consequence of not being able to communicate with others.

There are communication issues, such as the Internet and the associated broadband connectivity

issues (Hongthong, Somrongthong, and Ward, 2015). Socially, staying in touch with friends and relatives is important to the seniors' way of life and their quality of life because it enhances care and stability. Rural government entities must establish stronger broadband accessibility, by providing a range of essential, desirable resources to remain vital in seeking other financial revenues (Townsend and Sathiaseelan, 2013). To participate in a digitalizing information communication technological society, there must be data infrastructures such as DSL, cable (coax), fibre optics, or mobile broadband available (Skerratt et al., 2012; Townsend et al., 2013). If the technological infrastructures are in place, the connectivity issue can be resolved and the digital divide can be delineated.

Internet-ready televisions, Internet-enabled platforms from smartphones, gaming devices, mobile tablets, and other technical support systems are novel ways to increase the benefit of connecting senior citizens to the delivery of vital information (Ofcom, 2011, 2012). Being connected to others and exchanging information reflects the constructive side of technology in aiding and improving the senior citizens' quality of life.

However, with the passing of time, more people are gaining knowledge about technology and the internet, and so the senior citizens of rural areas are also becoming aware of the use of the Internet. Now senior citizens are found to have their accounts on social media websites via which they interact with each other and reduce their isolation from society. Now, with the use of Skype and other online calling messengers, senior citizens and other people can connect with their relatives so they can know what others are doing and what is going on in the country. With the use of the Internet, people can remain aware of the political conditions of the country at any time by just browsing the latest updates about America's politics. Moreover, now the facilities are on the increase, and the healthcare staff has also made it easier for senior citizens to remain in touch with the healthcare staff either via the Internet or via other healthcare digital devices (RUNYON, 2017).

Now the healthcare department has introduced different digital devices which help patients to take care of their health. For example, with the progress of information technology, it is now possible for patients to control their diabetes by using the technology. Different mobile apps or alarming digital systems have been introduced, which help the patients manage their diet schedule and set reminders for their medicine time, meal time, and check-up time. With the help of technology, patients can now measure the use of calories per day, manage their exercise schedule per day, and keep records of their medication intake every day. The technology will alert the patient at the timing of the meal and medication, and then the patient will never forget the intake of the timely meal or medication. The technology can also be used by the healthcare staff to guide the risk factors for the disease to the patients as well as to healthy people (Mulrow & Pugh, 1995).

The technology is used by the healthcare staff and the patients for several reasons. Different healthcare centres now provide their online services with the help of which the patients can remain in contact with their healthcare physicians. In case of any issue with the patient, the patient can inform the healthcare staff about the problem, and then either the healthcare staff can guide them or send the home nurse to the home. This service is especially for senior citizens who cannot visit the

healthcare centres on a daily basis due to their disease or any other issue. This service is also for patients in rural areas because it is difficult for senior citizens to visit healthcare centres which are far away from rural areas. In this way, the citizens of the rural areas can also enjoy better healthcare services.

However, still, in some rural areas, there is a lack of internet connectivity, due to which the patients face great difficulty in using this service. For this purpose, the healthcare staff has managed the apps and devices which do not require the internet for their usage. However, the healthcare staff is aware of the senior citizens' use of that device because most of the senior citizens of rural areas have no idea how to use the device. For this purpose, the healthcare staff can design a chart or alert diagram, which can be helpful in educating people about the usage of the devices (Mulrow & Pugh, 1995). Health education means the patient's capability to read out and comprehend curative instructions to make proper choices for the best health results (Ramage-Morin, 2009; Zarcadoolas & Pleasant, 2005).

Quality of Life/Social Isolation & Integration

Social isolation is a complex concept that cannot be defined by a clear and specific definition. Some scholars find it a normal term. However, other scholars see it directly equivalent to loneliness which kills human abilities. Different definitions of social isolation have been found in the literature. According to a few kinds of literature, social isolation is an absence of contact with other people. Other literature defines it as a dual-dimensional concept: the absence of social contact with others and the loss of social support, which results in limited interaction with the people (Cornwell & Waite, 2014). No matter which definition is selected by the reader or by any person, the reality is that social interaction is a must for people of all ages, and this interaction becomes essential for the elderly population. The senior citizens are more than 60 years old, and that is why they face several physical and mental changes and also suffer from different diseases due to their social interaction. The elderly population then stops their interaction with their families, friends, and community networks, which may result in social isolation. However, social isolation is not the solution to any problem. Rather, it becomes another problem for the elderly population.

As discussed in the plethora of recent research, the ageing of the population is one of the major challenges most societies will have to face over the course of the next twenty years (Peacock and Kunemund, 2007). America's older adult population is increasing at a dramatic rate due to better healthcare, technology, and improved living conditions, which afford these senior citizens more time and energy to participate in technology (West, 2015). This assertion is further emphasized via Merrian and Kee's study (2014), which emphasized that after the professional work life for senior citizens, there are many years that active participation can be made via technology, thereby increasing longevity and eliminating isolation. Additionally, further research delineated that it seemed clear that there is much to be gained by individuals, groups, and communities through the promotion of lifelong learning (Niehaves and Plattfaut, 2014). Senior citizens can become most productive in later life by participating in virtual online learning activities by enrolling in a Red Cross (i.e.) online health

screening information tour, online travel offerings, online learning projects, or an online classical music entertainment site that enhances independence, increases participation, stimulates care-related issues, provides self-fulfilment and dignity, according to Merrian and Kee (2014).

The accumulation of empirical research on technology and ageing and the quality of life has substantiated that the potential for increasing levels of empowerment will be promoted through the acquisition of new skills for seniors (Opalinski, 2001). In examining the possible mental health benefits that occur with Internet usage for senior citizens, McContha and colleagues (1955) found that, after six months online, the seniors using the computers had significantly higher scores on the Activities of Daily Living scale, the Geriatric Depression scale, and the Mini-Mental State exam than did the control subjects (McContha et al., 1995). Substantial research also delineates that using the Internet to interact with others may help reduce loneliness and the rate of suicide (Philbeck, 1997). The social integration and usage of technology allow seniors the opportunity to explore interests and hobbies or obtain consumer information and access to community resources (Saunders, 2017).

Social interaction is necessary for senior citizens to keep their minds active and healthy. According to the estimate, it is found that the population of senior citizens in the world will reach 22% in 2050 (World Population Ageing, 2007). That is why the social isolation of the senior citizens of the United States and all over the world has become a serious concern because it may be a real threat to the physical and mental health of the people, especially to the elderly population. It may also lead to depression, self-harming, or self-neglecting behaviour in the elderly population of the United States. Social isolation is the main reason why people become victims of drug abuse, suicide, and alcoholism. When people do not have a social environment or are not involved in social activities, then this causes a higher level of cognitive or physical disabilities, which results in mortality (Saito, Fujiwara, & Fukaya, 2010).

Different kinds of literature have used different methodologies to evaluate social isolation interventions. Dicken et al. presented various designs to examine the interventions for social isolation in the elderly population of the United States, and the study also included the social isolation issue of the elderly population of the rural areas of the United States. According to their research, the only way to solve the isolation issues in the elderly population of rural areas is to guide them to use technology to have better social interactions (Dickens & Richards, 2011; Cattan, White, & Bond, 2014). In the rural areas, there are not many places to visit. Also, the elderly population is not that physically fit to travel or go on outings, which means they have no other option but to stay at home. The people of the society are busy enough with their routine tasks, and so they don’t get much time to spend with the older population. That is why the only way left for the elderly population is to use Information and Communication Technology to kill their loneliness or social isolation (NR., 2009).

With the help of the use of information and communication technology, the elderly population of rural areas can use social networking websites or browse other websites of their interest. In this way, these people become able to interact with people, and then they can make friends on the internet. Also, a few live messengers allow the elderly population to make video chats with their friends. In this way,

the elderly population does not remain a burden on anyone and spends their life according to their style. On the internet, no one bothers anyone. Rather, people come online when they are free, and they make video calls or chat with other people according to their wishes. In this way, the elderly population does not consider themselves a burden on them. In fact, with the help of the internet, two different old people from two different regions can interact with each other and can have a chat according to their interests (Chen, 2016).

When the literature is reviewed, then four studies are found to be addressing the relationship between information and communication technology usage and social isolation among the elderly population. These studies demonstrated a positive result of the usage of ICT in social intervention. Cattan et al. used befriending programs by using ICT for the elderly population of the United States, and they proved that by using this program, the people could have a better social circle due to which they felt more energetic and fresh (Cattan, Kime, & Bagnall, 2011).

Cotton et al. and Khvorostianov et al. used the computer and Internet in their studies. They showed in their results that most of the elderly population use the internet to increase their social circle. This can be done by using social networking websites such as Facebook. When the elderly population begins to use the Internet either for entertainment or for making a social circle on the websites, then they feel so fresh and active. They share their routine and enjoy new videos of their interest. They make friends and can also consult with online doctors where they can discuss their diseases and better treatment for them. In this way, they remain busy and active, and thus, in this way, their social isolation is killed by using ICT (Khvorostianov, Elias, & Nimrod, 2011; Cotten, 2013). Karimi et al. used ICT in general in their studies and proved that technology is a human's friend, and when it is used in any positive way then, it leaves a very positive impact on lives. Similarly, when the older population of the rural areas use information technology either for communication with the family or for making other friends, then it builds a very good social circle. Thus, it has a very positive effect on social intervention (Karimi & Neustaedter, 2012).

Social Networking

Facebook, Twitter, LinkedIn, etc., are becoming increasingly important for people everywhere and for people in different age groups. Active senior citizens who are Internet users and who participate in this social media thoroughly enjoy it (Vosner, Bobek, Kokol, and Krecic, 2016). Collected data from WEKA (Waikato Environment for Knowledge Analysis) revealed that older senior females participated more in social media as compared to their male counterparts (Vosner et al., 2016). Further study could examine why males are less attentive to social media, which could be a separate study in itself.

Furthermore, the social environment of senior citizens is underrepresented in technology research because many of the documented studies by researchers emphasize cognitive, physical, and sensory aspects of the elderly and gerontology (Silveira, 2013). Healthy ageing is characterized by the avoidance of disease and disability, the maintenance of high physical and cognitive function, and

sustained engagement in social and productive activities (de Bruin, 2012). Subsequently, studies that support the technology activities of senior citizens emphasized how technology and participation in social contact supported vibrant relationships with the seniors, thereby reducing social loneliness (Bran, 2013). Additional research on the benefits of social networking, social inclusion, and social connectivity acknowledged that among senior citizens, there was a greater individual sense of self-efficacy (Igbaria and Livari, 1995). Additionally, research has focused on capturing and quantifying behaviours and phenomena throughout the lifespan of senior citizens (Weil & Rosen, 1995). In this particular research, seniors were asked their perception of participating in technology, and one response was: “If you can’t use a computer these days, it’s like being, not being able to sort of read or write 50 years ago. I think one has to be computer literate” 2606, Focus Group ( ). Since technology has permeated activities of everyday life, researchers suggested that social media can bring together the determinants that affect the quality of life during the ageing process (Rowe and Khan, 1997).

Rainie et al. examined the use of the Internet by the elderly population of rural areas in the United States. The study suggested that the use of the Internet in rural areas is less compared to urban areas. However, it was already found in the literature that the urban users of the internet are more compared to rural users. However, Rainie’s study was different in the way that they discussed the difference between low-income households and low-income households in rural areas. According to the study, the users of the Internet in rural areas are fewer, but as the majority of the population of the rural areas belongs to low-income households, that is why they use the Internet much less as compared to the ones who belong to the higher-income households in the rural areas (RAINIE, REDDY, & BELL, 2017).

However, this situation only exists in the case of the younger population. When the study focused on the elderly population of the rural areas and then compared the use of the Internet by the elderly population of the rural areas, the results were out of expectation. Senior citizens of rural areas use more Internet and social networking websites as compared to the more elderly population of urban areas. The statistical results showed that only 14% of the elderly population in urban areas use the Internet and social networking websites and spend much of their time with their friends and family. On the other hand, 22% of the elderly population of rural areas is found to be using the Internet and social networking websites. This is because in rural areas, there are fewer places for outings, and the population is smaller, which is why the elderly population does not get enough social intervention chances. That is why they prefer to use the Internet, and then they make friends by using social networking websites.

The studies have also shown that household income is also one of the major issues due to which the elderly population is unable to use the internet. According to the records, approx 47% of the rural population belongs to low-income households, and this percentage is higher as compared to the urban or suburban areas of the United States. It becomes obvious that when people don’t have enough resources to earn, then they won’t have enough resources on which they can spend; when the household income is less, the elderly population becomes unable to afford the expenses of the internet and the information and communication technology. Using technology is not an easy task

because you need to buy either a mobile or a laptop, and that is why they have to spend a huge amount to buy the ICT device. Only the computer or mobile cannot help the user; he also needs Internet access, which is also an expensive step. The users need to spend a huge amount of money on Internet access on a monthly basis. Many people in rural areas have very low household incomes, so they cannot afford such expenses, which is why they remain unable to have access to social networking websites. Such a population prefers to gather with neighbours or spend their time gardening or reading books.

In rural areas, even some users belong to low-income households, but the issue is that they don't have exposure to technology or internet usage, and that is why they are reluctant to use the internet. In urban areas, the elderly population can easily be exposed to technology, and if they don't have an idea about it, they can join the learning institutions in the cities. However, in rural areas, there are very few such institutions where any person can go and get knowledge about technology. In rural areas, people also feel shy about learning new things and are less motivated, which is why they leave such chances. However, there should be technology institutions for the elderly population or middle-aged population where people can come and learn new things about technology. They can even learn about computer language, Microsoft Office, painting, Adobe Photoshop, or other technological advancements in the institutions.

However, the institutions should understand that these people are not learning technology to get degrees or jobs, and so the schedule should be very flexible and friendly. The elderly population takes more time to learn new things, so the environment should be very flexible. Also, the elderly population of the rural areas uses social networking websites. Some online programs can also be introduced on social networking websites or other websites where these people can take online classes and learn new things about technology.

With the awareness and the trend of using social networks and other technical facilities, now the users of the Internet are on the increase. In the rural areas, as the elderly population is gaining knowledge about technology, Internet usage is increasing from 3% to 19%. However, due to more facilities in the urban areas, the number of users grew from 8% to 36% (RAINIE, REDDY, & BELL, 2017).

Misconceptions or Myths

The literature review discusses the hurdles in the usage of technology by the elderly population in rural areas. These hurdles may be in the form of either financial issues, resources, or demographical situations. However, a very important concept needs to be discussed, and that is the myths and misconceptions among the people who don't want to accept technology in their society. Still, in the United States, there is a huge population that does not believe in technology and advancement, and they are happy with their old traditions and old methods of living life. However, the majority of this misguided population is of the elderly population of the rural areas.

There have been many people who belong to the rural areas and still believe in their old traditions. Especially the elderly population of the rural areas believes in continuing their living style according to their ancestors. They believe that technology can no longer be friendly to human beings. Rather, it has caused the destruction of cultures and traditions. The people believe that it is technology that has made the concepts of people different and now everyone wants to follow Western traditions without knowing anything about their religions and beliefs.

Moreover, these myths and misconceptions have become threatening to the elderly population of rural areas. Now, the people who belong to such old traditional places believe that with the help of technology, people may trace them. Some people believe that computers can no longer be helpful to human beings. Rather, it works like a camera, and the enemies or the other authorities can have a view of their houses and lives with the help of a computer. They are afraid of technology. They think that due to social networks, mobiles, and computers, sins are increasing, and this can only be reduced by following traditions.

In actuality, such an elderly population is unaware of the benefits of the technology, and they have no exposure to it. They don't know how beneficial information technology can be for people, and so there is a high demand for the development of technical institutions which may make people aware of the technology, its advancements, and its benefits. Again, another issue arises that in the rural areas, there are no resources, and so it is difficult to develop such institutions. As people of such rural areas are not aware of the use of technology, they don't let anyone start any institutions in such areas because they think that this may affect their generations. Also, there are no professional teachers available in rural areas. There are many teachers who claim to be professional teachers of technology, but in actuality, they don't know much about it. Now strong steps are required to guide people with misconceptions about the technology. These people should be aware that technology can no longer be harmful to human beings. Rather, it provides great opportunities to people and allows them to live their lives with great comfort and in an advanced manner.

Impact of Technology on the Quality of Life

Technology has changed our lives, and there is no doubt that after using technology, people can become aware of new and advanced things, which also change their lifestyles. This means that technology plays an essential role in enhancing the quality of life (Brockett, 2014). However, the quality of life is not changed only when the younger or the adults use the internet or the technology but also impacts the lives of the elderly population. In the United States, many elderly people in rural areas have adopted ways to use technology, and now they are using the Internet or other technology devices in different ways according to their requirements and for entertainment.

However, the question arises of how technology may change the quality of life in the elderly population. This question is being answered by much-published literature. According to the researchers, technology helps people to understand the requirements of the recent era. With the

usage of the Internet and technology, older adults understand new things and new concepts. They understand the advancements in education, architecture, in designing, and in many more things. No doubt that the elderly population is a bit reluctant to change their views about anything. However, when they use the internet, then they interact with different kinds of people and browse different things. With the help of this research and interaction, they understand the new concepts and gradually accept them (Schalock, 2014).

Nowadays, different apps and websites are available via which people can learn new things. In fact, on social networking websites, different groups and pages have been established that guide different things for people, such as cooking, advanced ways of gardening, decoration, languages, and many other things. Now apps and social networking websites also guide people with different tips to remain fit, and that is why many elderly people have adopted a healthy lifestyle after knowing the importance of health. Now people have started to walk on a daily basis, and some of them do exercise on a daily basis (Whitacre, 2016).

In the previous eras, people had no idea what may be the causes of different diseases, and also, they had no idea about nutritional diets. Now with the use of the internet, the elderly population has started a great change in their lifestyles as well as in their diet. People now prefer to have a healthy diet and avoid eating too much sugar and oily things. Now technology has guided people about the sugar level of the body, BMI calculation, obesity issues, and heart diseases. Now, people can also be aware of better ways to reduce depression and anxiety. Not only that, but technology is also guiding people about different aspects of life. Now, people know what to eat, what to wear, what to say, and how to behave. In the previous generations, the older people used to remain harsh to the younger, but now, with the guidance of technology, they know how to deal with adults and younger in a better way.

No doubt that technology is a blessing, and it has proved its worth in people’s lives. Now the healthcare systems have also introduced different apps and technology devices that alarm patients to take their medicines on time and to check their BP and sugar levels on a regular basis (Cotten SR, 2013). Different healthcare centres now provide their online services with the help of which the patients can remain in contact with their healthcare physicians. In case of any issue with the patient, the patient can inform the healthcare staff about the problem, and then either the healthcare staff can guide them or send the home nurse to the home. This service is especially for senior citizens who cannot visit the healthcare centres on a daily basis due to their disease or any other issue. This service is also for patients in rural areas because it is difficult for senior citizens to visit healthcare centres which are far away from rural areas. In this way, the citizens of the rural areas can also enjoy better healthcare services. However, still, in some rural areas, there is a lack of internet connectivity, due to which the patients face great difficulty in using this service. For this purpose, the healthcare staff has managed the apps and devices which do not require internet for their usage (Cotten SR, 2013).

Theoretical Framework

The purpose of the study is to evaluate how knowledge or education about technology can change the lives of the elderly population in rural areas. For this purpose, the theoretical framework will be based on the research of Niehaves and Plattfaut (2014), which analyzed the impact of technology on the lives of the elderly population in rural areas (Niehaves & Plattfaut, 2014). Technology, especially information technology, is playing an essential role in making the elderly population active and independent longer. The elderly population is now involved in using technology for different purposes. They use technology to have social interaction with the world and also to have knowledge about what is going on in the world. It is also found that the elderly population indulged in the use of information technology more than younger people or adults. The elderly population is neglected by society, and that is why they don't find any other way to remain socially active but to use social networks or the Internet. Moreover, the study also found that the internet and the use of technology have also changed the quality of life of the elderly population by different means. Technology has now provided great healthcare advancements, easy ways to know different things, and many other tools which are helpful for the elderly population to have a better lifestyle.

Baernholdt (2012) also found that most of the elderly population in rural areas prefer to use technology and the Internet rather than in urban areas. The reason is that in urban areas, the people have more opportunities, but in rural areas, there are no places to visit, and so the people are confined in their homes. That is why the elderly population prefers to use the internet. However, many people in rural areas have no exposure to technology, and they even don't understand the meaning of the Internet, and that is why the institutions are being established. In these institutions, the teachers guide the people about technology and its benefits and also guide them on the right way to use technology. Now the elderly population is much more concerned with knowing more about the internet, and they use it for making social circles, consulting with the healthcare staff, knowing more about the world, and having knowledge about the political conditions of the country. With the help of this theoretical framework, the study will evaluate when the elderly population of rural areas is well-guided to use technology positively and how it affects their lives (Baernholdt, 2012).

Summary

Articles presented in this review were published in the past five years; however, some older articles or sources provided necessary foundational or historical information. The literature shows that the technological and demographic deficits in many rural communities in the United States are of epic importance, and the necessity for addressing this issue and how it affects the daily lives of elderly rural residents is paramount (Salemink, Strijker, and Bosworth, 2015). However, participation in technology by senior citizens in these rural areas can enhance communication and afford optimal opportunities for seniors to personally engage online via the Internet to access essential health, finance, education, and social services information (Malecki, 2003; Strover, 2003; Velaga et al., 2012). Approximately one-third of senior citizens want to spend time using the Internet; however, many

seniors are reluctant to use the Internet because they have not had the exposure (Zheng, Spears, Luptak, & Wilby 2015).

Information technology companies also face great challenges while starting or establishing their systems in rural areas. Firstly, they know that the population in the urban areas is less, and that is why they cannot have much profit as compared to the urban areas. Secondly, they face great infrastructure challenges in rural areas, and that is why they have to spend a lot of money to establish the system, wires, and many other things. Thirdly, the companies can also face social challenges because most of the people in rural areas are either not aware of the benefits of the technology or are not interested in knowing about technology. That is why some people consider that technology is the main reason for cultural destruction in society, and so they don't let technology come into the rural areas (Webb, 2013).

Not only are there communication issues, but the people of rural areas are also facing great financial challenges in all fields of life. Technology is not only used for communication but is also used for education, healthcare, architecture, and many other fields. When it comes to education, due to a lack of financial facilities, the students are unable to have exposure to technology or advanced technology (Drake, 2012). Different educational institutions have been developed in urban and rural areas where people, especially senior citizens, are guided to use technology.

The world of technology has opened up great advances for societies across the globe. However, senior citizens are unable to fully enjoy what is offered as an opportunity in many urban cities for their senior citizens as opposed to senior citizens in rural areas (Lenhart, 2009; Lenhart, P., Smith, & Zickuhr, 2010). However, with the passing of time, more people are gaining knowledge about technology and the internet, and so the senior citizens of rural areas are also becoming aware of the use of the Internet. Now senior citizens are found to have their accounts on social media websites via which they interact with each other and reduce their isolation from society. Now, with the use of Skype and other online calling messengers, senior citizens and other people can connect with their relatives so they can learn about what others are doing and what is going on in the country. With the use of the Internet, people can remain aware of the political conditions of the country at any time by just browsing the latest updates about America's politics. Moreover, now the facilities are on the increase, and the healthcare staff has also made it easier for senior citizens to remain in touch with the healthcare staff either via the Internet or via other healthcare digital devices (RUNYON, 2017).

The technology is used by the healthcare staff and the patients for several reasons. Different healthcare centres now provide their online services with the help of which the patients can remain in contact with their healthcare physicians. In case of any issue with the patient, the patient can inform the healthcare staff about the problem, and then either the healthcare staff can guide them or send the home nurse to the home. However, still, in some rural areas, there is a lack of internet connectivity, due to which the patients face great difficulty in using this service. For this purpose, the healthcare staff has managed the apps and devices which do not require the Internet for their usage (Ramage-Morin, 2009; Zarcadoolas & Pleasant, 2005).

America’s older adult population is increasing at a dramatic rate due to better healthcare, technology, and improved living conditions, which afford these senior citizens more time and energy to participate in technology (West, 2015). Social interaction is necessary for senior citizens to keep their minds active and healthy. According to the estimate, it is found that the population of senior citizens in the world will reach 22% in 2050 (World Population Ageing, 2007). That is why the social isolation of the senior citizens of the United States and all over the world has become a serious concern because it may be a real threat to the physical and mental health of the people, especially to the elderly population. With the help of the use of information and communication technology, the elderly population of rural areas can use social networking websites or browse other websites of their interest. In this way, these people become able to interact with people, and then they can make friends on the internet. Also, a few live messengers allow the elderly population to video chat with their friends and enjoy their social circle (Chen, 2016).

Facebook, Twitter, LinkedIn, etc., are becoming increasingly important for people everywhere and for people in different age groups. Active senior citizens who are Internet users and who participate in this social media thoroughly enjoy it (Vosner, Bobek, Kokol, and Krecic, 2016). Rainie et al. examined the use of the Internet by the elderly population of rural areas in the United States. The study suggested that the use of the Internet in rural areas is less compared to urban areas (RAINIE, REDDY, & BELL, 2017). However, this situation only exists in the case of the younger population. Senior citizens of rural areas use more Internet and social networking websites as compared to the more elderly population of urban areas. The statistical results showed that only 14% of the elderly population in urban areas use the Internet and social networking websites and spend much of their time with their friends and family. On the other hand, 22% of the elderly population of rural areas is found to be using the Internet and social networking websites.

The myths and misconceptions have become threatening to the elderly population of rural areas. Now, the people who belong to such old traditional places believe that with the help of technology people may trace them. Some people are of the view that computers can no longer be helpful to human beings. Rather, they work like cameras, and the enemies or the other authorities can have a view of their houses and lives with the help of a computer. They are afraid of technology. They think that due to social networks, mobiles, and computers, sins are on the increase, and this can only be reduced by following traditions. However, technology institutions can be helpful in guiding people about the benefits of technology.

The purpose of the study is to evaluate how knowledge or education about technology can change the lives of the elderly population of rural areas. For this purpose, the theoretical framework will be based on the research of Niehaves and Plattfaut (2014), which analyzed the impact of technology on the lives of the elderly population in rural areas (Niehaves & Plattfaut, 2014). Baernholdt (2012) also found that most of the elderly population in rural areas prefer to use technology and the Internet rather than in urban areas. However, many people in rural areas have no exposure to technology, and they even don’t understand the meaning of the Internet, and that is why the institutions are being established. With the help of this theoretical framework, the study will evaluate when the elderly

population of rural areas is well-guided to use technology positively and how it affects their lives (Baernholdt, 2012).

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