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What effect does information technology have on the elderly and their family (s)

Tom Allen Harrell

WHAT EFFECT DOES INFORMATION TECHNOLOGY HAVE ON THE ELDERLY AND THEIR FAMILY(S)

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Social Work

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Approved by:

[redacted]

Dr. Rosemary McCaslin, Faculty Supervisor
Social Work

5/7/12
Date

[redacted]

Heidi Meraz, Director, Banning Community and Seniors Center

[redacted]

Josephine Coates, Director, James A. Venable Community Center

[redacted]

Dr. Rosemary McCaslin,
M.S.W. Research Coordinator

ABSTRACT

Electronic technology is rapidly changing society and the way in which it communicates. Prevalence of use is noticeable in every facet of our society. The workplace, schools, public and private functions, homes, businesses, and any other place one could think of that people may be one will find electronics in use, in particular, information and communication technology (ICT) devices. However, the elderly population has not been so involved with electronic technology. Society appears to have forgone human contact, actually communicating face to face, for a much more convenient, faster form of communicating and receiving information. The quantitative study was conducted with a small group of elderly participants utilizing a survey to measure the type(s) of ICT devices used by the elderly and for what purpose to examine the effect ICT has on the elderly. The results of the study revealed that over half, 56% of the elderly mainly used ICT devices as a source of security for emergency reasons and that friends or family contact were not a factor for owning an ICT device.

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With much appreciation to my research supervisor, Dr. Rosemary McCaslin, my advisor, Dr. Tom Davis, and all the faculty of the Social Work Department at CSUSB for the guidance and encouragement. A special acknowledgement goes to Eric Reyes and Allison Hixon, whom I could not have made it through this project without their assistance and friendship.

I would like to give a special thank you to the participants in this study for your participation and contribution the study.

DEDICATION

I dedicate this body of work to my children, grandchildren, and my wife Shelly. Thank you all for all your support and tolerance of my absence from your lives while I studied and worked on this project.

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CHAPTER ONE

INTRODUCTION

The fast pace of technology in modern American society is astounding in sheer speed and innovation as more varied products come into the market and society is increasingly racing against itself to keep up with the latest technological innovation. This pace is generally viewed as necessary and beneficial, particularly for young adults and adolescents. Today's elderly may have been in their forties or fifties when the technology explosion began to skyrocket ten years before the turn of the century. Earlier methods of communicating, once taken for granted, are now viewed as slow and cumbersome, tying one down to specific time and locations. The speed of innovation is a constant that outpaces even the most astute of new users and has proven to be a pace that the elderly may find disconcerting and challenging. Through it all, the increased speed of new technology increases the ability to relate and communicate with one another at the same time, it may decrease the amount of time invested relating to one another, face to face, and more importantly, with family.

Problem Statement

In the rush to provide the latest technological advancement to the public, information and communication technological (ICT) devices are often targeted for certain populations. These particular populations do not usually include or are not geared towards the elderly populations. Consequently, the elderly may be slow or reluctant to use the technology or may not use it all, viewing it as too complicated or unnecessary. However, the families of the elderly, in particular, younger family members, are engaged with and are incorporating new ICT devices in their daily functions. The elderly may resist ICT devices, may not have access, or lack ability to use or operate the new devices. In the process, old ways of communicating with family are lessened and social interaction decreases. This leads to the question of whether ICT use affects social capital with the elderly.

> An article by Charness and Boot (2009), states that society is experiencing two important sociocultural trends. The first is the exceptional increase in the duration of the trends that began in the 20th century in many developed countries. The second is a rapid increase in the adoption of microprocessor-based technology,

> introduced with Intel's 4004 microprocessor invented in 1971. The confluence of these two trends might lead to beneficial outcomes for an aging population or may widen the so-called "digital divide" favoring younger adopters. (Charness & Boot, 2009, p. 253)

Some studies have shown a decline in social capital among the elderly when information and communication technology (ICT), in particular Internet use, is introduced within their daily activities. According to Robinson and Martin (2010, p. 47), "The three widely publicized studies of an early Internet impact report, the results were consistently showing declining social life and media use." Kraut, Patterson Landmark, Kiesler, Mukophadhyay and Scherlis (1998) and also Nie and Erbring (2000) conclude in their writings: "National studies with more than 2,000 respondents, found declines in social life, television viewing, and other activities that could be considered functionally equivalent" (p. 54).

Availability and access to ICT has grown rapidly in American society within the last decade. Many households, businesses and nearly all schools own computers and have access to Internet resources, various applications to navigate, investigate, appropriate the daily functions

society used to have to do physically or in person. Is society better or just more efficient? Are people closer to one another as a result of ICT or more distant? Is it an improvement that society is now connected by satellite and fiber optics and no longer have make an effort to connect with one another face to face? These and many other questions spring up on all sides.

Purpose of the Study

The purpose of this study is to find definitive changes within the dynamics of friendships and families in relation to the questions of information and communication technology (ICT) use and how it affects social capital of the elderly and their families and friends. There are many varied parameters involved with the elderly. Some may seem mundane to others whom view them as ordinary, but the fact is that which is taken for granted, such as walking to the bathroom, using the bathroom, and walking out is not a simple process for some elderly people. The same is true for the elderly and ICT use. What is now considered ordinary operations such as dialing, texting, photographing, gaming, email and voice mail, downloading, etc., is not viewed as ordinary

forms of communication by some people and particularly, not by portions of the elderly population. However, it has not gone unnoticed that the children and grandchildren of the elderly, not all, but most, are consumed by the sheer uniqueness of ICT and make constant efforts to obtain and navigate the latest and ever changing ICT devices.

With the increasingly fast paced innovations of ICT, the elderly are generally not included when it comes to access and ability. This negates pathways that could be available to the elderly and thereby a continuum of communication with their family(s). Communication with family is often the first thing to disappear in the lives of some elderly people. Pearson et al. (2009) quoted a Neilson statistic (2008) that states: "During the second quarter of 2008, 13 to 17 year olds in the United States with text-capable cellphones sent an average of 1,742 text messages per month, compared with only 231 voice calls" (p. 46). With access and ability, it could be possible for the elderly to communicate more often with their families. As they age, less and less time is spent with younger members in the family system. Approaches to address the access and ability of the elderly and ICT may

increase social capital with the family and contribute to longevity for the elderly as well as increase awareness of the elderly for younger members within the family system thereby, increasing family cohesiveness and homogeneity.

Significance of the Project for Social Work

The elderly face a variety of issues including, but not limited to rising health costs, the potential for intergenerational competition of scarce resources, poverty among certain groups, especially women and minority groups (Popple & Leighninger, 2008, p. 548).

> California is projected to be one of the fastest growing states in the nation in total population Projections are the elderly population will have an overall increase of 112 percent during the period from 1999 to 2020. More than half of all counties in California will have over a 100 percent increase in this population. ("Facts about California's Elderly," 2007)

Since 1980, the share of the federal budget dedicated to programs for the elderly has more than doubled (Popple & Leighninger, 2008, p. 554). These are

indicators that an increase for specialization with aging will be necessary to assist with increasing competition for resources to address the many pressing needs of the elderly.

The results of this study can assist social work practice from both a macro and micro aspect in bringing attention to the isolation of the elderly from society and their families. Inclusiveness with ICT use will contribute to the well-being of the elderly, as well as bring comfort to children of the elderly and decrease the necessity for emergency interventions in cases of abandonment, neglect, failure to thrive, and other abuses that the elderly may experience.

> In considering to the factors concerning the use and nonuse of technology by older people, the following are often cited: their ambivalent attitudes towards ICT due to, on the one hand, received messages from the media or authorities about the technologies' almost magical benefits and opportunities but, but, at the same time, the experience of having no little need for their use and their lack of usefulness in their everyday life. (Hernandez, Pousada, & Gomez, 2009, p. 227)

This is, perhaps, a conundrum for social work practice as the attempt(s) to include the elderly and their family through modern communication technology, ICT may be hampered by the ambivalence inherent in this particular population. At the same time it does draw attention to the affect that ICT use may have on social capital with family members as well as society in general.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The design, marketing, and use of information and communication technology (ICT) in American society exploded exponentially within the last decade. More people of all ages and groups are using varied devices to communicate with family and friends, as well as conduct personal business. The telephone is still a common communication device in the home, but is now also a common, highly portable device carried by a large percentage of the American population. The cellphone is now so common that it consumes considerable amounts of some individual's time, whether at school, work, or play. In observations of people using cellphones, iPods, MP3's, computer tablets, iPhone applications, home video games, and personal computers, society appears to be consumed with the ever evolving devices.

Rarely are the elderly seen using these devices regularly. Occasionally an elderly person can be recognized talking on a cellphone or utilizing a personal computer, but seldom utilizing the many other various ICT

devices available to the public. Studies have found that there is an effect from excessive use of ICT among some populations within American and other societies. The elderly, however, may have other issues in regards to access and ability that may limit or inhibit ICT use in their daily lives. One question concerning the use of ICT use is the possible loss of social capital that affects the overall population. Thus far, findings have been inconclusive. This study seeks to determine if ICT use, including accessibility and ability, affects social capital among the elderly and their families.

Positive and Negative Use of Information and Communication Technology

Though studies have shown the benefits of information and communication technology for the elderly in its many respects such as access, immediacy, the studies are not conclusive in the overall effect and efficiency for the elderly

> It is suggested that previous studies of the effect of information technology (IT) on society had a negative impact on social life as well as on mass media use. Other studies have shown little societal change in terms of user's daily behavior both in the

> United States and other countries. It then proceeds to document further negative evidence from two more recent large national surveys with high response rates: the 2006 General Social Survey (GSS), with more than 2,500 respondents, and the 2003-2005 American Time-Use Survey (ATUS), with more than 40,000 respondents, aged 18 years and older. The GSS collected time estimated data on particular social media (mainly free-time) activities, while the ATUS study collected dairy data on all daily activities across a single day. Respondents who reported more time on the Internet did report fewer social visits with relatives, but more visits with friends, compared to those who spent no time on the Internet. The main difference between users and nonusers in the ATUS was with time at paid work, which was only partially explained by higher Internet use by teens and on days off from work. (Robinson & Martin, 2010, p. 45)

Another study suggested positive results from the use of ICT by the elderly. The study, conducted in Barcelona, Spain by Hernandez, Pousada, and Gomez (2009) found that, "Frequently, people older than age 65 are a

group that is seen as one in which the possibilities in relation to modern technologies are barley acceptable by issues of access and usability" (p. 227).

> The data was gathered using two methods. One method was a focus group that was conducted in order to garner information regarding the adoption, opinions, fears, and objectives related to ICT. The group provided data in relation to the objectives given at the beginning of the article such as how to facilitate or introduce technology into the lives of older adults that do use ICT. The other method was in the form of an online questionnaire that was administered to find out how elderly people use ICT. The findings revealed that 1.5% of those over the age of 65 responded affirmatively to the question of whether they had been connected to the Internet the previous day. Furthermore, there are a number of statistics that show that this age group is at least connected to the Internet. At the same time, many studies emphasize the potential benefits the use of ICT has, particularly for elder people. (Hernandez, Pousada, & Gomez, 2009, p. 227)

The explanation for the differences between the two studies suggests that there may be a psychological component to the elderly's ability as well as access in regards to their personal desire to stay connected, or not, to society in general or their levels of contact throughout their lives.

Other research by Gitlan, Earland, Peirsol, and Shaw, 2010 suggests that "among the elderly, certain difficulties with functional activities, for example, bathing or dressing may cause anxiety about fear of falling or even death" (p. 84). This study uses a novel intervention to address this public health problem. "Advancing Better Living for Elders program or ABLE is a home-based intervention for functionally vulnerable older adults" (Gitlan et al., 2010, p. 84). The study discusses the functional ability of older adults in combination with new occupational therapy techniques to perform their activities of daily living. "The intervention involves the use of occupational therapy to help the elderly utilize adaptive equipment and techniques to bathe or dress" (Gitlan et al., 2010, p. 84).

Goodman (2009) in contrast, conducted a symposium on extending life indefinitely suggested that such changes

should not be left to personal choice. Social change is unpredictable due to the magnitude and pace of technological advances. The literature suggests that "community and communication are critical in addressing the moral challenges which tend to present themselves toward the extension of life" (Goodman, 2009, p. 240). Moreover, the literature also discusses whether "human life should be considered as an intrinsic or instrumental value, and if so, to what end" (Goodman, 2009, p. 241). The literature concludes that "like any liberty, no technological institution has the right to remove liberty from human beings" (Goodman, 2009, p. 246).

Moisio 2003 suggests that negative consequences may occur with the consumption of certain technologies such the use of cellphones. This literature "presents an analytical approach which studied the use of cellphones and their correlation with anxiety" (Moisio, 2003, p. 340). The study discusses consumer's anxiety experienced when they are unable to contact others at any time and any place (Moisio, 2003, p. 340). The study involved interviews, auto driving, participant observation and photography was designed to investigate

the meanings and consumption practices of mobile phones among a group of rural consumers.

In 2008, Torp, Hanson, Hauge, Ulstein, and Magnusson conducted a study about, "[T]he caregivers of frail elderly people without ICT who are unable to establish immediate contact with informal support networks to reduce stress and other mental health problems."

> The objective of this pilot Norwegian intervention study was to explore whether use of ICT by informal caregivers of frail elderly people living at home would enable to gain more knowledge about chronic illness, caring and coping, establish an informal support network and reduce stress and related mental health problems. (Torp et al., 2008, p. 75)

The findings infer that the elderly gain from ICT at the same time relieving distress, if they manage to learn how to use ICT in their daily lives. If motivated, physical access to ICT, interest in it and the will to use it can benefit the elderly.

Ability and Access

Charness and Boot (2008) reviewed evidence that, "Point out that attitudes and abilities are among the

most powerful predictors of technology use." And also, "Age-related changes in technology adoption and in abilities that effect technology use" (p. 256). The study looked at the attitudinal barriers, cognitive barriers, physical barriers, and other age related changes affecting technology use. Charness and Boot (2008) suggests, "Perceptual, cognitive, and psychomotor declines will continue to occur with aging, in concert with lifespan sensitive changes in motivational factors" (p. 257).

Ultimately, the use of information and communication technology relies on the user's desire to actually use the medium and the type of device they want to use may depend on their attitudes and perceptions change during the aging process.

"A correlation was found between the subjects whose attitudes towards old age in the present were negative, and those who subjectively defined their health as bad" (Ron, 2007, p. 656).

Categorizing the subjects on a continuum that at one end are the elderly people whose attitude towards old age and aging was negative, both in the present

and the past, and those whose attitude was positive in their youth and the present. (Ron, 2007, p. 656)

Negative attitudes were strongly associated with negative words.

There is a natural assumption that if the health of an elderly individual is bad, they would have a negative outlook, whereas and elderly individual with 'good' health would have a more positive outlook. However, the study infers that negative and positive perceptions can carry over from youth to the present in the lives of the subjects in the study. It seems that attitudes of people are formulated at an early age and that life experience, norms, family-cultural perceptions and experiences gained have an effect on the continuance or change of these perceptions (Ron, 2007, p. 661).

One of the reasons for a project exploring the subject of ICT is the pathology that appears to occur with those who use it. For many, it becomes obsessive and compulsory. It has been compared in various studies to other forms of addiction such as tobacco, drugs and alcohol addiction.

Empirical research into 'Internet Addiction' can roughly be divided into five areas: (1) survey

> studies that compare excessive Internet users with non-excessive users, (2) survey studies that have examined vulnerable groups of excessive Internet use, most notably students, (3) studies that examine the psychometric properties of excessive Internet use, (4) case studies of excessive Internet users and treatment case studies, and (5) correlational studies examining the relationship of excessive Internet use with other behaviors (e.g., psychiatric problems, depression, self-esteem, etc.). (Widyanto & Griffiths 2006, p. 31)

The study by Widynato & Griffiths (2006) gives weight to varied findings that ICT use is not either, positive or negative as it relates to the elderly. However, ICT has progressed tremendously and extremely fast since this study was conducted and users do not have to wait until they get to their personal computers. They can now carry it in their pocket or briefcase. It is that portability of ICT devices that has increased the usage of ICT by most of the population, in particular, adolescents and young adults. In conclusion it would appear that if 'Internet addiction' does indeed exist, it affects only a relatively small percentage of the online

population (Widynato & Griffiths, 2006, p. 48). Perhaps a more revealing conclusion from this study is it suggests that the speed of new technology as it is rapidly introduced to society will determine if the research should be addressing who is using ICT, for what purposes, and the cost and benefits of ICT as opposed to who is addicted to it.

Hilt and Lipschultz (2004) conducted an exploratory study with results finding that "elderly ICT users prefer using the technology to access information more likely related to weather, health, games, news, and entertainment, however, their main use of ICT was to communicate with family and friends using email" (p. 57).

> The major components of the methodology were participant observation and personal interviews. The study also confirms the difficulty in getting older people to adopt new technology and suggests that it takes family members, friends, local groups, and computer classes to help the elderly overcome apprehension and confusion related to technology. (Hilt & Lipschultz, 2004, p. 60)

The study solidifies previous research findings that the elderly, in addition to the various cognitive, physical,

and economical challenges they contend with, are reluctant to incorporate everyday ICT use other than as medium to stay informed and for singular entertainment activities such as playing cards. The complexity of ICT, especially in the initial stage of use, creates or presents a barrier to incorporation of use by the elderly unless a positive, beneficial use can be learned or taught relatively quickly and easily.

Theories Guiding Conceptualization

Human communication is understood in various ways by those who identify with the field. This diversity is the result of communication being a relatively young field of study, composed of a very broad constituency of disciplines. It includes work taken from scholars of rhetoric, journalism, sociology, psychology, anthropology, and semiotics, among others ("Models of Communication," 2011).

It is helpful to examine communication and communication theory through one of the following viewpoints:

- Mechanistic: This view considers communication as a perfect transaction of a message from the sender to the receiver.
- Psychological: This view considers communication as the act of sending a message to a receiver, and the feelings and thoughts of the receiver upon interpreting the message.
- Social Constructionist (Symbolic Interactionist): This view} considers communication to be the product of the interactions sharing and creating meaning. The Constructionist View can also be defined as, how you say something determines what the message is. The Constructionist View assume that the "truth" and "ideas" are constructed or invented through the social process of communication.
- Transmission Model: Sees communication as robotic and computer-like as a way of sending or receiving messages and the perfection of that.

- Systemic: This view considers communication to be the new messages created via "through-put", or what happens as the message is being interpreted and re-interpreted as it travels through people.
- Critical: This view considers communication as a source of power and oppression of individuals and social groups ("Models of Communication," 2011, p. 2).

Understanding the Constructionist View of communication contribution to the various theories of communication is essential as it provides a framework to view the interlocking theoretical perspectives of theorist.

Communication can be silent too, as with facial and hand signals, eye contact, or body postures and movement, all of which are necessary when one human interacts with another. The changing of the ways of communication from the physical hearing, seeing, and verbally responding, to the now technical forms of ICT devices, is the natural innovative progress of older techniques such as telephones and typewriters. However, the speed in which

society is indulging in these innovations may have an effect on human relations as the need for face to face contact diminishes.

Another viewpoint of communication theory is how we understand communication in relation to the physical and cultural environment that an individual lives. The person in environment perspective in social work is a principal guiding practice that highlights the importance of understanding an individual and his or her behavior in light of the various environmental contexts in which that person lives and acts (Kondrat, 2008, p. 451). For example, respecting individual differences of economic and environmental contexts, each person may be different. In addition, family theory has emphasized the importance of communication to family functioning. The relationships between and among family members and between the family and its environment are maintained through patterns of communication-that is, the sending and receiving of messages as well as a feedback process (Lesser & Pope, 2011, 2007).

The concept of "social capital has existed since small communities formed and humans interacted with the expectation of reciprocation and trust" ("Social Capital

Theory," 2011, p. 1). The term in its present form and associated meanings was popularized, amongst others, by Pierre Bourdieu, James Coleman, Mark Granovetter and Robert Putman.

> Even though most of the research on social capital focuses on the benefits of social capital, these authors differ in the treatment of the concept. While Putman's focus is on the benefit accruing to the community, Coleman and Bourdieu provide conceptualization at individual level. They believe that social capital exists between individuals and can be studied at the individual level. Social capital resides in the relations among the nodes and 'just as physical and human capital facilitates productive activity, social capital does as well'. It exists between individuals and by extension can be accumulated by the individuals. Such a view of social capital rests on the premise that 'my connections can help me', it is all about establishing relationships purposefully and employing them to generate intangible and tangible benefits in short or long terms. The benefits could

be social, psychological, emotional, and economical. ("Social Capital Theory," 2011, p. 1)

Summary

ICT may deny the elderly social capital in regards to communicating with family and subsequently lessening family cohesion. ICT may not be obtainable for some elderly due to access and ability. Some elderly have positive gains with ICT use, some studies of which has been found to improve sociability and mobility for the elderly. Social networks have value to the human spirit, providing that which contributes to being a part of society and more importantly, family. Social contacts made through social networks affect the productivity of individuals and groups. ICT is changing our lives and life-styles to some unknown extent. ICT is transnational and global, not confined to geographical boundaries. It is bringing with it sweeping and lasting cultural transformations. At this point in time, it is unknown what the effects of ICT are, as there has not elapsed enough time to properly research the phenomena of electronic devices and society' deep fascination with it. The study seeks to find answers to questions of social

capital and family cohesion as it applies to the elderly, thereby, enabling social workers to have an insight into the social networking of the elderly and if there is harm or positive gain from ICT use.

CHAPTER THREE

METHODS

Introduction

This study is being conducted to find what, if any, social capital is lost between the elderly and their families if their forms of communication are information and communication technology (ICT) devices. The elderly face increased loneliness as they age for a variety of reasons. This could be due to the death of a spouse, geographical distance from family, economic hardship, estrangement, lack of transportation, or the various debilitating medical issues that befall the elderly. Some elderly retain relatively vibrant cognitive capabilities and others have diminishing cognitive capabilities which can be an important factor in their feelings of belongingness and connectedness to the world around them. This study seeks to understand how, and if, the elderly adapt to the fast, changing pace of ICT, how often ICT is utilized in their daily functions, and how often they use ICT to communicate with their families.

Study Design

To evaluate the value of ICT in the lives of the elderly, a series of research questions guided the study in the form of a survey. The survey was chosen as the most efficient method of gathering information in an unobtrusive manner as it is also voluntary and allows data to be collected from differing geographic areas demographical groups.

The question of whether information and communication technology (ICT) use has an effect on the elderly and their families is the focus of the study, but other research questions presented in the survey in respects to the elderly and their use of ICT in their daily lives as well as other functions that they may utilize ICT, are also included in the survey to gauge their level of activity with ICT use. The research questions are presented to participants with possible responses arranged on a Likert scale utilizing a five point range from "almost every day" to "never."

The survey was distributed to seniors at community centers that provide computer access and technological information forums, seminars, or classes. Area churches were considered as some participants may lack access to a

community center. The churches could also provide more variation from a more geographical diverse population. There are issues concerning the responses representing and encompassing the variations within the demographics of the elderly population as it relates to ethnicity and income levels. This is a possible indication that distribution of the survey must occur with and where other differing elderly populations congregate.

Sampling

Availability sampling was the method used as it affords the largest amount of participants for this study over various regional geographic areas where the elderly could be reached. The survey was distributed and collected two weeks from the date of distribution, allowing ample time for completion of the survey. A sample size of 50 participants of at least 65 years of age was chosen to best represent the elderly population.

Selection criteria included elderly participants who used personal computers, cellphones, iPhones, iPods, video games, MP3s, and any other ICT device that is or is not a part of their daily functions. Finding this population of the elderly was accomplished at senior and

community center locations. The locations also provided the possibility that it would allow other elderly, who may also use ICT, to engage with one another. There are two criteria for choosing participants; a) active use of any type of ICT device, and b) currently communicating or engaging family via ICT device(s). Participants were offered the option of receiving five dollars for their time or having the five dollars donated to their respective senior or community center.

Data Collection and Instruments

In this research, the independent variables are family cohesion and social capital. The types and amount of use of ICT devices were the dependent variables.

Measures of Family Cohesion, Social Capital, and Information and Communication Technology

Family cohesion and social capital was measured by a series of six questions within the survey (Appendix A) that consisted of eleven total questions. Utilizing the Likert scale, the participants were asked how often they spent a social evening with a relative, neighbor or a friend. Participants were also asked if they communicated with family or friends using ICT devices, and if they

did, how often. The method participants used to communicate with family or friends was measured by the type of device or devices participants preferred to utilize when communicating, such as the personal computer, cellphone calls or texting. The participant's desired methods of communication was measured by how they preferred to contact family members or friends using an ICT device or conventional methods.

The instrument for this study was created by the author. A research of relative instruments relating to the subject were investigated and declined, as their focus was not in line with the questions the study seeks to find answers to. The questions presented in the survey instrument of this study were of an unobtrusive design and simplified, as reasonably as possible, for the participants to feel at ease with the study questions. A test of the survey questions was conducted at a local community center with about 10 participants, with positive results, before the actual conduction of the survey.

Procedures

The survey was distributed at two senior centers and one community center recommended by the social workers at the particular facilities. Before distribution, the participants listened to a short explanation of the survey and were informed generally of the context. The researcher presented the survey either in social rooms or other rooms available for speaking to small audiences. The survey was administered to groups of participants as they arrived for various functions associated with the community centers or to individual participants who were asked by the staff if they would like to participate. All participants were allowed to take the survey in private and steps were taken to insure confidentiality while taking the survey by the participants.

After each participant verified that they understood and wanted to participate, they were given a choice of completing the survey at that time or taking it home and completing and returning it at a later date. Participants were given 10 to 20 minutes to complete the survey. If a later date was chosen, the participants were instructed to leave the questionnaire at the front desk or office of the facility. The researcher hand collected all data and

secured it at his residence. The researcher instructed the community center staff to encourage the participants to read the informed consent or read it to the participants and personally hand them a survey to fill out. The participants were also instructed, as well as it is stated in the informed consent, how to contact this researcher should there be any questions.

After a period of 10 to 20 minutes, the surveys were collected and the participants debriefed. The surveys were collected by the staff and placed into a large envelope without any identifying information about its contents and returned to this researcher on a specified date prearranged with the facility director.

Protection of Human Subjects

The names of the participants in the survey were not given and they were not known to this researcher. All information was anonymous and confidential, and each participant was identified by a numerical system which is used when entering data to identify individual participants taking the survey. All completed surveys were secured in a locked filing cabinet in this

researcher's home. All surveys were destroyed at completion of this research project.

Informed consent (Appendix B) was provided and explained to ensure understanding by the participants in the survey. Participants were read the informed consent by community center staff or individually read the informed consent before taking the survey. Participants acknowledged their consent by placing a checkmark in the box provided. A copy of the informed consent was given to each participant at the beginning of their taking of the survey.

After completion of the study, participants were given a copy of the debriefing statement (Appendix B) by the community center staff, which was also read to the participants by the staff. After debriefing, participants were asked if they had any further questions about the survey, and were thanked for their participation. The researcher thanked the director and all the staff assisting in administering the survey. The survey was distributed over three week period and collected by this researcher on a date agreed to by the directors of the community center and this researcher.

Data Analysis

The quantitative data retrieved was analyzed by using an IBM SPSS Statistics Base program, Version 20.0. Pearson correlations were used to examine the relationships between the independent variables of contact, communication, conventional contact, face to face contact and the dependent variable of information and communication technology (ICT) use. The age of the participants were also compared with the levels of use utilizing a Pearson correlation. An independent samples t-test was performed to compare participants who used ICT for family and relationship contact and participants who used it for social purposes.

Frequency distributions existing within the data were used to determine the mean age of participants, and also the frequency distribution of age among participants, as well as the frequency distribution of ethnicity among the sample was evaluated using the IBM SPSS program.

Summary

This researcher took precautionary steps to protect the confidentiality of the participants. In addition, all

participants and the staff of the community center were treated with respect and informed of the intent of the study and the specific procedures (the taking of the survey and the analyzing of the survey data) in which they were involved. During debriefing procedures this researcher provided an opportunity for participants to ask questions or present any uncertainties about their involvement in the research by providing a contact number on the informed consent form and the debriefing statement form. The researcher's intent is to determine not only the effect of ICT use among the elderly participants and their families and friends, but to also determine what types of ICT devices used and the purposes of which they were used by the participants. In so doing, the participants were informed that the process is not intrusive and that their contribution to the project could provide some insight for the researcher and the public. For their contribution, the researcher wanted the participants to feel comfortable in providing information, feel confident that the information is secured, and complete the process feeling appreciated for their contribution.

CHAPTER FOUR

RESULTS

Introduction

In this chapter, the outcomes of the statistical analysis are presented. The frequencies and descriptive statistics are presented to describe the mean age of the participants in the survey, the gender, age, and the ethnic distribution of the participants in the sample.

The data was analyzed to determine the outcomes of the quantitative data using Pearson correlations and examine the frequency of information and communication technology (ICT) use between participants and their family and friends and the purpose of the use of ICT devices as it relates to social media.

Presentation of the Findings

The participants of this study consisted of regular attendees of senior citizens community centers ranging in age from 45 to 86 years (the number of participants, $N = 28$, the mean, $M = 67.1429$, and standard deviation, $SD = 9.25248$). The sample is split between women ($n = 15$, 53.6%), and men ($n = 13$, 46.4%). The majority of participants were Caucasian ($n = 14$, 51.9%). Other

ethnicities represented were American Indian/Alaskan Native (n = 2, 7.4%), Black (n = 5, 18.5%), and Hispanic (n = 6, 22.2%). Some participants failed to provide data for age (n = 4) or ethnicity (n = 5). (See Tables 1 & 2.)

Table 1. What is Your Gender?

GENDER	*n*	*Percent*
MALE	13	46.4
FEMALE	15	53.6
Total	32	

Table 2. What is Your Race?

Race	n	Percent
American Indian/Alaskan Native	2	6.3
Black	5	15.6
Caucasian	14	43.8
Hispanic	6	18.8
Total	27	84.4
Missing	5	15.6
Total	32	100.0

The findings of the study revealed that 43.8% (n = 14), of elderly adults use ICT to maintain contact with relatives or friends but 88% (n = 22) of those surveyed own an ICT device, primarily a cellphone, for emergencies. However, the data shows there is significance in the frequencies between how often the elderly make the initial contact with relatives or friends and do the elderly normally use an ICT device to contact relatives or friends. For participants that use a device very often, the results were 25% (n = 7). Conversely, 32.1% (n = 9), never use a device for contacting family or friends, and 17% (n = 5), use ICT occasionally to make normal calls to relatives or friends.

The participants indicated that slightly more than half 54.8% (n = 17), of them prefer to use a cellphone to communicate with family or friends and 38.7% (n = 12) did not prefer to use a cellphone or any other ICT device at all. Perhaps a more astonishing revelation, according to the findings, shows that a large majority of participants 86.7% (n = 26) prefer to use a more conventional method, a land line telephone, to communicate with relatives or friends. Though a strong percentage of participants,

61.3% (n = 19) possess a cellphone, it is not the mode of communication preferred. This suggests that technology is a force over which they have no choice but to participate or else not communicate with relatives or friends who will only communicate in that mode.

In respect to other ICT devices, it was revealing that a strong majority of participants did not utilize other ICT devices such as home computers, tablets, or iPhones. More revealing results from the survey indicated, that the elderly do not utilize technology, in general as a group, as opposed to the current generation of young adults. The survey revealed that of all the ICT devices, 56% (n = 14) of participants preferred to use a desktop computer at home and 54.5% (n = 12) use email as the primary vehicle for doing so. Other than a mobile phone, the type of ICT device the participants 39.1 (n = 9) used frequently is a desktop computer.

The research also shed light on the idea that ICT is not a welcomed interloper and is in fact, an obstacle in their lives. Participants surveyed showed that 42.9% (n = 12) never used social networking sites when navigating the internet. When the participants do utilize the internet, it is primarily to find news sources,

economic deals such as sales on home products and clothing, weather reports, and political updates. And they prefer to do this at home, on their own computers, if they have one at home (56%, n = 14).

The Pearson correlation coefficient was used to determine the relationship between the variables. An examination of the possible bivariate correlations revealed no significant relationships except for the following how often do you make the initial contact with relatives or friends and gender were significantly correlated ($r = -.424$, $p = .024$). The correlation is significant at the 0.05 level (2-tailed). A significant relationship was found between how often do you contact relatives or friends and gender ($r = -.493$, $p = .008$). The correlation is significant at the 0.01 level (2-tailed). A significant relationship was also found between do you feel less connected because of your use of ICT devices and how often do you contact relatives or friends ($r = .472$, $p = .011$). Also, there was a correlating relationship between do you normally use an ICT device to contact relatives or friends and how do you prefer to communicate with your family or friends ($r = .538$, $p = .003$).

Summary

This chapter covered the results of the data statistically analyzed for all the variables and categories created for the study. The significant results are presented in a statistical format. The following chapter will discuss the relevant importance of the findings and the implications as it relates to social work practice.

CHAPTER FIVE

DISCUSSION

Introduction

This chapter concludes the study with a discussion of the findings and presents, in detail, whether or not the findings are consistent with previous findings or align with the hypothesis of the study. In addition, explanations and implications of the findings will be discussed to determine if there are discernable limitations of this study that may or may not contribute or effect future research, are also considered with suggestions for furthering research on the elderly and their use of information and communication technology (ICT) devices.

Discussion

The effect from the loss of social capital due to increasing ICT use by society has unknown consequences for the elderly. The elderly participating in this study revealed that they lag behind their children and grandchildren in the type of information and communication technology (ICT) devices used and the

purposes for which they use ICT. Conversely, their families are immersed in ICT.

> A Pew Research Center report (2012) shows that, teen texting volume is up while the frequency of voice calling is down. About one in four teens say they own smartphones. Sixty-three percent of all teens say they exchange text messages every day with people in their lives. ("Teens, Smartphones & Texting," 2012, p. 2)

This indicates that the elderly, who are having difficulty communicating with computers and cellphones, will have increased difficulty, if texting is the main preferred mode for their grandchildren, and possibly less contact with their families, in particularly, their grandchildren.

ICT is in constant re-inventive mode and is transforming society into communicating and information sharing at speeds that are forgotten before it has been adopted by other segments of society. In addition, Selwyn (2003) writes: "The ability to use ICT is now assumed by most commentators to be a prerequisite to living and working in the information society" (p. 99). Using technologies for organizing life, to pursue special

interests and to keep in touch are strong motivations for communicating (Hamilton, 2011, p. 28).

A study of 21 people ranging in age from 58 to 90, the majority female with a range of education, activity levels, disabilities and health issues reported "use of technology ranged from someone who does not use a cellphone, word processor or email at all, to fairly well advanced users of Facebook and a variety of messaging technologies" (Hamilton, 2011, p. 28). Similar to this study, the research revealed a strong motivation for using ICT is to keep in touch with family and friends. Aside from keeping in touch, digitization is forcing many elderly to merge into the information age to do banking, photography, obtain benefits (direct deposits), pay bills and engage in leisure activities such as listening to music.

A study of information technology (IT) by Robinson and Martin (2010) found no significant correlation in declining social capital and high levels of IT use suggesting that further research is needed and perhaps insufficient time has to elapse before a viable study can be done. Also complicating such studies is the nature of humans. Put more simply, what is interesting, consuming,

and has value to one person may be dull and a waste of time to another person.

Most importantly to any ICT user is the ability to adapt to the technology quickly mastering a particular device thereby, gaining confidence to master the next modification of that device or other devices. For the elderly learning is not as easy. Hamilton (2011) states: "Some people mentioned changes in their capacity for learning and remembering with age and found it difficult to master new technologies even when they could see the usefulness of doing so and even when help was at hand" (p. 30). Other factors having an effect on the elderly and ICT use are gender, marital status, education levels and health issues. Couple these factors with the designs (size, shape, font, etc.) of ICT devices and ICT becomes a task to avoid rather than a beneficial asset.

Selwyn (2004) states: "The social commentators are beginning to highlight the fact that the information society is also an aging society (Bernard & Phillips, 2000), and that encouraging older adults' use of ICT is an essential prerequisite to overcoming the digital divide" (p. 370). Still, ICT use is not a prized talent among the elderly but rather an activity used by a

minority of the elderly. Selwyn (2004) also writes: "There is therefore, growing concern that older adults must engage with new technologies or be further disadvantaged in contemporary society" (p. 370). This is the general thought that accompanies the information age, that one must engage or risk isolation from society.

There are other factors which affect the elderly that complicate this assumption, especially in regards to income. ICT devices are expensive and it takes several years before the cost declines and usability is designed to be friendlier. A majority of the elderly cannot see the immediate necessity of ICT devices and are not able to afford them either. The survey revealed that many have a mobile phone just for emergencies not for maintaining contact with family or friends. Studies have shown that the many factors connected to ICT and its use by the elderly is not increasing.

Limitations

Although there were few significant relationships found in this study, it should be emphasized that the sample size was small. The small sample may have contributed to the strength of the correlations found

between relationships of the variables, and would possibly have been stronger had a larger sample been used. In addition, the sample is comprised of participants from relatively small communities outside of metropolitan areas which may have contributed to the results in the survey also.

The sample did not have a wide variation of age, but did have a relatively equal distribution of gender among the participants. Though the demographics of gender was split almost equally, the sample is over represented by Caucasians which could be a result of the geographical areas in which the survey was taken. It is not known if this is a causal factor of access or economics in relation to the area.

Furthermore, there seemed to be reluctance by the participants or lack of understanding by the participants as it related to questions. Some would skip whole pages or parts of pages even though they knew the survey was done anonymously and all information would remain confidential throughout the process. Perhaps the length of the survey may have caused participants to not want to complete the survey.

Recommendations for Social Work Practice, Policy and Research

Findings in other research regarding information and communication technology (ICT) and the elderly, revealed that there is no evidence of significant measurable effect on the elderly and ICT use at this time. Other research has suggested that not enough time has elapsed to effectively evaluate if the elderly find value in the information age. Selwyn, Gorard, Furlong, & Madden, (2003) found: "The survey data from a randomized sample of 1001 adults confirm the findings of previous studies that age is highly significant in whether and individual can access and make use of ICTs such as computer and the Internet" (p. 580). The data also confirm that "using a computer is not only a minority activity among older adults but also highly stratified activity by gender, marital status, educational background, and age" (Selwyn et al., 2003, p. 579).

Much needs to be done to make easier the use of ICT by the elderly and the presumed deprivation of a resource that may enhance their lives. It is the purpose the elderly use ICT which is the aspect this researcher feels is more important to the elderly population.

Digitization, fiber-optics, and cyberspace are all beyond the scope of knowledge and interest of the elderly within particular age groups and education levels. The data did show that most elderly relied on ICT for specific purposes such as medical information, fact finding, and searching for lost or forgotten information.

Research also found that older adults who used computers in their former professions continued to use them in retirement. And for some elderly, ICT is a status symbol that has been encouraged by friends and family to "keep up" with society. Economic factors must be considered in decisions for most elderly as to the extent and type of ICT use. The data in this research found that a simple cellphone for making emergency calls was the reason elderly utilized ICT. Selwyn (2003) states: "It is this point that we should recognize the need for re-conceptualizing the elderly's non-use of technology if we are to develop a deep, objective understanding of why they do not engage with ICT in society" (p. 107). As researchers, the question should not be are the elderly using ICT or why they are not, but rather for what individual purposes.

The many reasons found in studies of the elderly and ICT use range from technophobia, cognitive deficiency, product design, and ideological refusal to purpose and affordability. For social work practice ICT use by the elderly is subjective in relation to geographical location, social environment, economic status, cognitive ability, need and purpose of the individual.

> First and foremost it is essential to avoid an assumption about the benefits of technology for individuals and, it follows, preclude the formation of a pejorative approach towards non-use of technology as well as mono-causal explanations and focus on individual as well as collective influences. (Selwyn, 2003, p. 107)

Indeed, we must focus on individuals and their relationships with their family or friends to better understand their reasons why they may or may not use ICT.

Conclusions

The importance of this study is that it unveils the necessity of ICT in relation to the elderly. Indeed it was observed by this researcher during the survey portion of the study that though senior centers provided

computers, there never appeared to be anyone using them. The findings suggests that for this population, availability of the many functions a simple cellphone provides is not the reason for their purchase, but being able to contact someone in an emergency is the most important reason for having an ICT device. The frequency of use for other purposes was very small and suggests there is a reluctance to engage ICT or incorporate ICT into their lives unless there is a desire outside of the basic need for emergencies. This suggest that the usual training of once a week classes by most senior centers, is not enough exposure and perhaps not explained thoroughly and in language conducive to the elderly when it is being taught to them.

Finally, economics is a determining factor when considering whether the elderly contacts family and friends or is contacted by family or friends. It is this researcher's understanding derived from this study that communities served by my profession will continue to have to make difficult economic decisions that will affect whether or not they own an ICT device.

APPENDIX A

QUESTIONNAIRE

QUESTIONNAIRE

This survey is designed to measure your use of information and communication technology (ICT), what types of devices are used such as; cellphones, iPhones, iPods, MP3s, tablet computers, desktop computers, or laptops, how often the devices are used, and with whom the devices are used. Please read the questions below carefully and circle the one that best describes your answer to the question. Please only circle one answer for each question.

A. Contact with family or friends

1. **How often do you contact relatives or friends?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

2. **How often do you make the initial contact with family or friends?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

3. **Do you normally use an ICT device to contact family or friends?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

4. **How do you prefer to communicate with your family or friends?**
   1. Cellphone
   2. Netbook
   3. Tablet computer
   4. Desktop computer
   5. iPad
   6. Laptop
   7. None of the above

5. **Would you prefer to use a conventional method to contact family or friends such as:**
   1. Telephone
   2. Telephone voicemail
   3. Third party personal message
   4. Other (specify)_____

6. **Would you prefer face to face contact with your family or friends?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

7. **Do you feel more connected to your family or friends because of your use of ICT devices?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

8. **Do you feel less connected to your family or friends because of your use of ICT devices?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

B. Using the Internet

9. **Which internet technologies do you use the most?**
   1. Email
   2. Visit Internet sites
   3. Instant messaging
   4. Internet phone calls

10. **How often do you use the Internet?**
   1. Everyday
   2. Once a week
   3. Once a month
   4. Once a year
   5. Never

11. **Where do you mainly use the Internet?**
   1. Home
   2. Work
   3 Library
   4. Community Center
   5. Internet Cafe
   6. Other (specify)_____

12. **If you use your own equipment to connect to the Internet, would you please indicate the type of equipment you use the most?**
   1. Desktop computer
   2. Lap top (notebook) computer
   3. Netbook (small notebook)
   4. Tablet computer
   5. iPad
   6. Cellphone

C. Social Media

13. **What type of social media websites do you use?**
   1. Facebook
   2. Myspace
   3. Twitter
   4. Photo sharing
   5. You Tube
   6. Other (specify)_____

14. **How often do you use social networking sites?**
   1. Very Often
   2. Often
   3. Occasionally
   4. Almost Never
   5. Never

15. **What do you mainly use the social media for?**
   1. Keep in touch with family
   2. Keep in touch with friends
   3. Organize activities or events
   4. Post photos
   5. View photos
   6. Other_____

D. Cellphones

16. Do you own a cellphone? Please indicate the main type of mobile phone you use.

1. iPhone
2. Blackberry
3. Standard cellphone
4. Other (specify)_____
5. Do not use cellphone

17. Why do you mainly have a cellphone? Please indicate how important the following reasons are by circling A,B, or C.

	Very Important	Slightly Important	Not Important
Make calls	A	B	C
Receive calls	A	B	C
Text messages (send/receive)	A	B	C
Email (send/receive)	A	B	C
Emergencies	A	B	C

18. Do you feel more connected to your family or friends because of you mobile phone use?

1. Very Often
2. Often
3. Occasionally
4. Almost Never
5. Never

C. Demographics

19. What is your gender?

1. Male
2. Female

20. What is your age? _____

21. What is your race?

1. American Indian/Alaskan Native
2. Black
3. Caucasian
4. Asian or Pacific Islander
5. Hispanic
6. Other_____

Thank you for helping with this survey, your participation is greatly appreciated.

Developed by Tom Harrell

APPENDIX B

INFORMED CONSENT

INFORMED CONSENT

The research in which you are being asked to participate is designed to study if information and communication technology (ICT) has an effect on the elderly and their families. This study is being conducted by Tom Allen Harrell under the supervision of Dr. Rosemary McCaslin, PhD., research coordinator, California State University, San Bernardino. This study has been approved by the School of Social Work Subcommittee of the Institutional Review Board, California State University, San Bernardino.

This is a survey distributed to the elderly who are at least 65 years of age. In this survey you will be asked to respond to several statements or questions. Please circle the answer that you feel best represents your opinion. There is no right or wrong answers. The survey should take about 5 to 10 minutes to complete. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may stop participation at any time.

The participants will be voluntary and confidential. Data collected will be held in a locked storage unit at the researcher's home. There are no foreseeable risks to the participation in the research project. There are no benefits to participants in this research project.

If there are any questions concerning the research or research subject rights, please contact Dr. Rosemary McCaslin, PhD., A.C.S.W. School of Social Work, California State University San Bernardino 92407. Phone: 909-537-5507/rrmccaslin@csusb.edu. Results of the study can be located at Pfau Library, 5500 University Parkway, California State University San Bernardino 92407 in September 2012.

By marking the informed consent, I acknowledge that I have been informed of, and that I understand, the nature and purpose of this study, and I freely agree to participate.

Mark: _____ Date: _____

APPENDIX C

DEBRIEFING STATEMENT

THE EFFECT OF INFORMATION AND COMMUNICATION TECHNOLOGY USE
DEBRIEFING STATEMENT

This study you have just completed was designed by Tom Allen Harrell, a graduate student in the Masters of Social Work program, to investigate what effect does information and communication technology use has on the elderly and their families.

Thank you for your participation. If you have any questions about the study, please feel free to contact Dr. Rosemary McCaslin at 909-537-5507. If you would like to obtain a copy of the results of this study, please contact the Pfau Library at California State University San Bernardino in September of 2012.

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