Seniors: Technology, Leisure, and Travel

Bob Lee, PhD

Associate Professor Program Coordinator of Tourism, Leisure & Event Planning School of Human Movement, Sport & Leisure Studies Bowling Green State University Bowling Green, OH 43403 USA

David Groves, PhD

Professor Emeritus School of Human Movement, Sport & Leisure Studies Bowling Green State University Bowling Green, OH 43403 USA

Abstract

Technology is advancing very rapidly. There is still a great gap between older and young users regarding their abilities to use the technology and adapt it into their daily activities. The purpose of this article was to develop a framework to rethink the impacts of technology to daily lives of older adults and how it may improve the quality of their lives, especially as it relates to leisure and travel. The first step was the development of individualized approaches to help individuals adapt and adjust to the new and changing technologies. The second phase was the development of an understanding how service providers can interface with older populations via technologies to more effectively increase the role of leisure and travel in seniors' lives.

1.0 Introduction

Senior (older adults) travel has been on a rise, and will continue to grow as the baby boomer generation gets older. When retire, senior citizens are finally free from the commitment to work and will likely love to travel. They will require different levels of service due to the growing demands from a large number of boomers. Technology is, no doubt, an integral part of this process. It must be noted, at this point, that seniors and technology is an ever-changing landscape. Use of this technology becomes important to one's quality of life. Leisure is the pursuing of activities that are enjoyed and can be used to build life skills. Travel, in this context, is not the traditional definition, but the one that involves the use of technology to extend lifestyle. The traditional context of travel is one of visiting desired destinations. In a lifestyle definition, travel is being able to function, communicate, and to use resources to move around the community, as well as to visit a distant destination.

Travel, historically, often rely on a travel agent to make arrangements. This has significantly changed due to advancement of technology. Today, technology is the primary mode of making arrangements for travel. It is important to understand how this technology can afford seniors to increase travel opportunities within their community, as well as to a distant destination. It cannot be assumed that seniors are as effective using technology as the general population. As we have witnessed how technology has changed lifestyles and significantly influenced the quality of life among general publics, older adults who learn how to use the technology can benefit from the it in their pursuit of leisure and travel. The first part of this manuscript details an understanding of how to approach seniors and their uses of technology. The second part explores seniors' desire for travel, and how this technology can be used effectively among them.

2.0 Technology and How to Approach Seniors

Technology has been increasing at an exponential rate and has had a profound influence upon thesociety. This change is so rapid that it is difficult for many members of the society to keep up with its pace. There is a gap and it is widening between those who can use the technology and those who cannot. One of the populations who has disadvantage in adapting technology is senior citizens. Seniors need help to keep pace with the change. Today, this is an essential part of life for them to maintain quality and function.

Technology includes computers, television, telephones, tablets, digital home devices, etc. These instruments are being well adapted for our daily living. Nowadays, an individual can hardly function in society without using technologies. An understanding of technology and how to use it can add functional skills. Technology can not only make life easier but also restore skills that have been lost.

Technology, in the social or behavioral context, is not about the hardware or software but about the user ability to employ the technology for a desire purpose. The key is to present an user friendly technology or have someone who can help users to understand the technology to make it usable in one's life. It is equally important to know how to approach individuals to make the technology become "real" in their lives. A primary question we may ask is how to help an individual to understand the nature of the technology and being prepared for change as the technology evolves. It must be recognized with whatever population group you are working that the audience has a spectrum of attitudes, abilities, and experiences that must be factored in to the development of any instructional program. What is being suggested is a target segmentation approach. This type of approach recognizes that individual differences are the most effective in helping them to adapt technology into their lifestyle. A popular - approach often seen is that one size fits all which often left individuals to struggle in the process of learning to use technology. While the target segmentation approach allows the technology adapted to the individual.

Hardware and software have different degrees of friendliness. This element of friendliness has a direct bearing upon the use of the technology. Most companies' reputation, to some extent, depends upon the usability of the technology. There are very few companies that have an active program of instructional develop for their technology. As a result, the onus falls upon an individual to work his or her own way through the use of the technology. What is being said in a nutshell is that there is a gap, and in some cases, significant gaps, between the technology and its usefulness. Even it can be the best technology but if it cannot be applied directly by the user it is useless and not worth the dollars invested. The key is to develop the instructional method to reduce the information gap for those pieces of technology that the client has a desire to use (General References).

One of the common approaches to studying this information gap is looking into demographic. (Demographic References) Often the senior audience is segmented through a demographic approach that has very little relationship to technology. Some of the common assumptions are that those with higher education and income usually dependent on technology more. Aging has a way of leveling such demographic factors. Another approach, the psychographic approach, may hold the greatest potential for aging segmentation so that instructional programs can be individualized (Psychographic References). This type of approach allows a more meaningful understanding of the aging process as it relates to technology. Obviously, it is not in either or process in terms of demographics and psychographic can be related to the segmentation process to give greater understanding. Nevertheless, segmentation is the key to individualization. The segmentation must be meaningful as it relates to seniors and their use of technology.

The demographic variables have been the most researched. Of these variables, the primary ones are age and income. Age is important factors because different generations have been exposed to different levels of technology. Therefore, there is a difference in the level of technology and its uses by different generations. This could bea cultural element that has far reaching impacts upon instructional programs. Income is another key variable because those with higher incomes can afford different levels of technology. This does not suggest that folks in lower income levels have not been exposed but that the more sophisticated and advanced technology has been a function of disposable income. Individuals with higher income have been able to afford better levels of help with their uses of the technology.

The purpose of this study was to identify important psychographic variables and to determine a typology for each of the variables that can be used to study instructional programs that help seniors to improve their uses of technology. The following variables were identified: attitude toward technology, skill level, type of technology, location, social group, health/adaptation for a keyboard.

3.0 Method

The methodology used was a thematic content analysis of EBCO articles related to seniors and technology identified from the database. The abstracts of the articles were reviewed to determine important variables and potential levels for the development of typologies for each of the variable. In some cases, when it became necessary, a complete article was reviewed.

The following searches were completed:

A total 973 abstract and articles on seniors and technology were reviewed. 195 ware about seniors/technology and demographics, 52 were on seniors/technology and psychographic factors, 57 were related to seniors/technology and their learning attitudes, 21 were associated with seniors/technology and their skill level, 48 were of seniors/technology and type of technology, 234 were regarded to seniors/technology and location, 91 reviewed seniors/technology and adaptations/key board, and 102 studied seniors/technology and social group. Three practitioners were invited to review the typologies and classification systems and to help refine the developed typologies. The typologies can be utilized in a grid system to segment senior audiences to better understand their needs and develop instructional approaches for each of the audience types.

4.0 Results

Each of the identified typologies has a hierarchical position and is also related to the others. One level has to be fulfilled in some way before the next level to be achieved. Thus, all of the typologies have an additional position within the continuum.

The first of identified variables is attitude. Attitude toward technology is a precursor to the fulfillment of the other variables. A negative attitude is a drag to the development of the positive instructional program. If individuals think they cannot achieve, it was very difficult to move forward. The second precursor variable is skill level. This variable is directly related to self-confidence and the ability to perform. Previous experience is the element that gives the individual confidence to go forward and achieve it. The other variables are conditional factors that contribute to the ease of learning or setting the condition for affective achievement. Type of technology affects the parameters and extent that the individual uses technology within their lifestyle. The more experience in technology, the better the individual adapts. Location and social group are comfort factors that developed in the right environment for affective learning. The more comfortable the individual feels the better they will do with the technology. Therefore, the comfort is an essential element to creating an approach that is more effective. The last variable is adaptation of the keyboard. This is only for the uses of computer but it points out the need for adaptation of any technology. Given the functional limitations of older individuals. Without knowing what the specific technology it is difficult to determine the adaptation. Therefore, the keyboard was used as an example to point out the need for adaptation based upon seniors' limitations.

With regard to the precursor of attitudes, there are three primary positions. The first is an open attitude toward technology. (Attitude References) These types of individuals desired technology and see it as a positive factor in their life. These are individuals who have greater life satisfaction and often have a positive focus on the present and future. These individuals are willing to take an opportunity to try new technologies and often see the opportunity as an adventure. The adventure may be positive or negative but it is often seen as a new experience which enriches one's life. The middle position on the continuum is use of technology with mild encourage. This is a neutral position on the continuum but some type of stimulation is needed to develop a condition for the use of technology. Incentive is the basis for involvement. Attitudes in this context are motivational and seen as incentives to use of technology. Some of the more important incentives are staying in touch with relatives, seeking medical information, and information on gadgets such as date, time, and weather. Some other individuals are very sociable. When see others' using the technology, they often have the desire to become involved. Once engaged technology may have a positive or negative influence on their life. It directly depends upon how these individuals are approached and their success with the technology. Success is extremely important factor to a continuation of their use. Often, immediate success leads to enthusiasm and desire for more technology.

Once engagement becomes successful, new technologies can be introduced without further resistance. The usefulness of the technology is important but not necessary. The third position on the continuum is strong encouragement. These individuals have a negative attitude toward technology. In order to approach these individual, we must first understand how their negative attitude was formed. These individuals have to be shown the importance of technology and its usefulness in their life. Often, these individuals have lost some type of functional skills but the technology has the ability to restore some of the functionality. Where in the past have been reticent to use technology, there are now more open because of the conditions that exist. There are many additional types of conditions that can attract these individuals to become engaged. These individuals have to have greater structure in their use of technology because they are not explorative as those individuals who have an open attitude. These individual must be continuously stimulated. Knowing the usefulness of technology is important for them to keep up with opportunity of using technologies.

The second precursor of variable is skill level. (Skill References) The continuum on skill level ranges from frequent use through no experience. The first position on the continuum is use technology at an effective level. These are individuals who have adapted to technology and have some degree of competency to be able to adjust to new technology that affects their life. At this level, these individuals are independent and are well tuned into society. The next position on the continual is those who have some uses of technologies. These are individuals who are competent. Their competency depends upon minimal help to get started. Once started these individuals can help themselves and know where to seek advice if they get stuck with the technology problem. They have enough confidence to be able to use technology with certain limitations. The attention to be given to this group is developing additional self-confidence to the point where they can become efficient in technology use. The next point on the continuum is individuals who have little experience. These are individuals who with a medium amount of help can use technology, but they need periodic follow-up because when they get stuck they become anxious and frustrated and this often leads them to stop using the technology. It is the focus to this group to develop a competent relationship with someone who can follow up with these individuals on a continuous basis to keep them pointed the right direction. The last position on the continuing is no experience. These individuals need maximum help. There must be continuous follow-up almost on a daily basis so that an effective relationship can be developed with someone who they have confidence in and feel comfortable with to help them through startup and use of technology. These individuals are very sensitive to friendly technology and very rarely progresses beyond the use of simple technology in their life. Most of the points on the continual have some relationship with confidence in regard to use of technology. This is an underlying to or a latent variable that significantly influence the use of technology.

The other variables analyzed in this research are conditional elements or factors. They are: type of technology, location, health/ Input Type, and social group.

Type of technology is one of important conditional factors because there are a number of options for the individual. (Type of Technology References) Some of the common ones are home appliances or technology used in the home, including telephone, computer, and tablets. The first and perhaps the most important are appliances that are used in the home to perform daily functions. This includes such appliances as washers, dryers, stoves, microwaves, refrigerators, dishwashers, televisions, cable boxes, etc. Nowadays, most of these items are difficult to operate because of digital technology. A trend in the industry is to have more benefits or features because it is in their interest of selling more products to a technical savvy society. This is direct opposite of what seniors often need, which is a simple appliance to operate without the bells and whistles. As a matter of fact, even the savvy technological individuals may have problems with these types of appliances because the instructions are not well written.

Another instrument is the telephone. Most individuals do not have land lines and the wireless telephone is a necessity. Many of these wireless telephones have adopted full technologies that are computer and Internet based. The smart phones are the current trend and it is a way for the individual to stay connected and obtain information on the go. Many of the smart phones are difficult to understand and use. It seems like the greater the technology the more sophisticated it becomes. The sophistication is counterintuitive to many seniors because of the complexity. The seniors desire this technology because it represents mobile communication with family, friends, and the outside world. There are companies that try to simplify the technology with bigger keys, telephone service only, etc. Even with this simple approach, the technology is still a mystery to many individuals. Computers are essential part of most people's lives.

There is a desktop or laptop. The technology is as complicated as the wireless telephone. Many of the programs are changing on a yearly basis and even if you have learned some programs the software changes very quickly. Many times the developed software is not user friendly. Even though it is a user friendly device, once the product is sold there is not much follow-up where an individual can ask questions without extensive waits on the telephone. There is a tremendous amount of frustration and anxiety in the use of technologies because of the nature of its complexity. One of the newest technologies is that tablet. This is the ultimate mobile device because it incorporates all of the function of the telephone and computer into one piece. Books can be read, pictures taken and shared, the Internet searched, etc. All of these information products are very desirous by the seniors. Much of it depends upon touch screen technology which is still far beyond most seniors. Add to this app and the technology is even more complicated. Motivation in this category is very important because the seniors wish to share with family and friends pictures, video, etc. They wish be connected to the world of information that includes such factors as time, temperature, date, weather, directions/GPS, etc. This motivation sets up a positive desire to use technology and make life easier and functional. However, with the nature of complexity it also generates a tremendous amount of anxiety and frustration, in fact, even to the point of abandoning it.

Another conditional factor is location. (Location References) This is the location of the instructional program and where seniors feel more comfortable with it. One of the most convenient places is the senior center. This is a community location where many of the seniors gather for various programs. The advantage of this location is that a group class can be held and other seniors can help in the instructional process, a peer counseling approach. Another merit for choosing this location is that participants are in the same range of ages and likely have the similar needs. This is the location that may not be intimidating seniors' learning and the environment is more supportive and open to change. Another type of setting may be a neutral group location. This type of location has to have some kind of familiarity to the individual and the group often has a strong social connection. The advantage of this type of location is that it may have positive influence to their learning by providing a strong social connection that may alleviate some level of the anxiety because of the familiar social group and social setting. The strong influence is the atmosphere that has been created because of the comfortable conditions psychologically. A neutral individual setting may be a type of location that influences the instruction because of the attention that is provided by the instructor. It is not threatening because it allows the individual to be able to ask questions without being intimidated by the embarrassment of group processes. The setting itself must have a degree of familiarity to create an environment that is comfort for their learning. If the environment is one where the individual has had success then, this is a place that has a history for the individual that allows him or her to achieve with a positive attitude. Home is another location where the individual may feel more comfortable because of the familiarity. This is a location that has security and he or she can ask questions without being intimidated by a group setting. This also affords the individual the opportunity to use the technology where they will frequently use it in the future. It develops a positive influence by association with other activities within their lifestyle. Home also has an atmosphere of being in one's domain and the individual feels that they have control in this environment. They have the feeling that they can influence the outcomes because this is their domain.

The next variable is health/Input Type. (Input Type References) Input is only the one chosen in this paper from many possible adaptations. Adaptations are essential based upon the client's ability and their comfort in using particular technology. Many do not have a problem using a keyboard cause it is patterned after a typewriter that the individuals have used in their professions. Some of the adaptations are size and color of the keys. Another adaptation could be different ways to striking the keys given that the fingers do not have the ability to strike the keys in an advanced age. There are two other sources of input: touch screens and voice commands. These are newer technologies and it may take some time for older adults to adapt to these new inputs as well as a positive attitude court learning new technology. The key point here is to feel comfort in their learning to use the technology. Without this preliminary input skilled mastery of the software and hardware is not possible.

Another of the conditional factors is social group. (Social Group References) With whom an individual receives instruction is important in developing an atmosphere conducive to learning. The one form of the social groups is the unfamiliar. The advantage of this type of group dynamics is that the individual has nothing vested with this group and he or she can try out new behaviors without any consequences related to a position in the group. The downside of this type of group is the anxiety associated with unfamiliarity and not knowing how the group will react to their participation. This anxiety may be a deterrent to effective learning.

Friends as a social group have just the opposite influence of the unfamiliar social group. The individual may be reluctant to perform or participate because of a fear of being an underachiever and this affecting their position in the social group. The other aspect is that the familiarity with a group may create comfort and a result in less anxiety. This will create a feeling of comfort and camaraderie to enhance the learning environment.

The next point on the continuum is to have individual instructions from a professional. This type of instructional setting allows for the development of confidence because of receiving instructions as well as attention from an individual who has the knowledge to provide help. This instructor must have an understanding of how to work with seniors and make them feel comfortable to not only establish content presents but a friendly atmosphere for the exchange of information in order to enhance the learner's skills. To achieve success for this approach is the establishment of a relationship that will facilitate seniors' learning. Additionally, an alternative instructional method is to use a volunteer who can assist the senior. The essential element for this approach is the establishment of compatibility in personality between the senior and the volunteer. A volunteer may be either another senior or it may be an intergenerational group member such as high school students.

The individual may feel more comfortable with someone near their age because they may have a feeling that they can empathize with their technology problems. A high school student may be best for a volunteer because, often, they are seen as a grandchild and there can be a very fruitful exchange because these individuals have something very positive to give each other in terms of their experiences. The senior is viewed in terms of the individual who has wisdom and understanding things; while a teenager is viewed as someone who can help with the content and has a good understanding of the generation gap. The last instructional setting is family member who has the time and patience to work with the senior. The positive side of this type setting is that the senior has a relationship with a family member and can immediately provide the necessary instruction in a comfortable environment. The success of this type of setting directly depends upon the relationship with the family member. However, often, family members are seen as a "profit in their hometown." Anxiety and frustration may occur because the senior cannot keep pace with a family member. This approach has both positive and negative influences but there have been more negative than positive because of previous association and experiences.

The variables isolated from this article are not definitive. There are more precursor and conditional variables that should be identified to develop an effective assessment tool for the grid. This is only an initial study to help define a framework for a needs assessment regarding seniors and their uses of technology. It is essential that the psychological factors behind these variables be well understood so that they can be utilized to develop instructional programs using technology and help seniors to improve the quality of life and restore some of their functional abilities. Equally, it is important to understand the variables by knowing how they work, why they work and the way they do. It must also be understood that the demographic factors are as important as the psychographic factors. Each generation of seniors can be defined in terms of their demographics but how the psychological factors.

4.1 Examples

Example of how grid works is based upon the assessment of two clients.

Griding for client one: Female/ 65 and widow Attitude/ mild enhancement Skill level/ some use /minimal help to get started/self help Type of technology use/ minimal home appliances and telephone Health/ adaptation of the key for keyboard/ none Location/ home Social group/ Setting/ family

Recommendation: This individual has the ability and the motivation to become involved and that the stimulus to this involvement is family. The suggestion is to encourage the family to engage the senior's learning and show how the computer can be used to enhance family communication. The home appliances and the telephone seemed to be so used effectively that the computer is the next step to increasing the quality of life with family members and developing a stronger day to day relationship with them.

Griding for client two:

Male/74 married Attitude/ strong encouragement Skill level/ some use/ minimal help to get started/self help

Type of technology/ home appliances/ smart phone/ no computer in home but uses computer at the library Health/ adaptation for the keyboard/none Location/ neutral group setting/ library Social group/setting/ individual professional/ client is a loner

Recommendation: It is apparent that this client has the ability to work with some level of technology, but there is an overriding social reason in which he does not have a positive attitude. The reason for his attitude seems to stem from some negative experiences with his use of technology. His smart phone is his link and he does not need a computer because he gets all the information that he needs from its phone. His use of new technology other than a smart phone is directly dependent upon him seeing its use in his life. His wife is a technophobe and limits his use of technology. Until her attitude toward technology is solved, he will not have a more positive experience with technology. Any instructional program will have to involve his wife.

The following have been two examples of the grid and how it could be used to assess the needs of seniors and to give critical information for the development of instructional methodology, based upon an individual approach. This type of approach depends directly upon assessment and being able to customize a program for the individual and understanding technology in the person's life. It must be pointed out that there are many more variables that can and should be used to develop a grid. This research is an initial study to determine the feasibility of griding in a needs assessment process for seniors.

5.0 Technology vs. Leisure and Travel

The second part of the manuscript deals with seniors uses of technology regarding their leisure and travel. This cannot be accomplished without the first part and the effective use of technology by seniors. This is the reason that the manuscript has focused upon the effective use of technology first.

Often, leisure and travel of seniors are basically a function of lifestyle. (Leisure and Travel References) This lifestyle affects the technology and its influence upon the individual. Decisions are made based upon the lifestyle needs of the individual. It is often difficult to break through these lifestyle barriers because most of seniors are not willing to readily change and adapt to new technologies. This is where the first part of the manuscript is extremely important to help break down the barriers to increase the use of technology and improve the lifestyle choices that seniors make. It not only includes change in regard to technology, but even a change in functional lifestyle. (Table 7 Example Resources)

5.1 Virtual Travel

Virtual travel is the ability to experience communication, events, etc., through technology. Many seniors may not be able to attend family events, local, or national popular events, etc. However, they can experience the event through the Internet by video and can interact with other participants, live, through an interactive social media. This is not a direct experience, but it surely makes them feel a part of the event and they can enjoy and feel meaningfulness though their participation. This type of participation, even though indirect, will have an impact upon the individuals. They will not feel isolated and they will feel part of the event community. It is important not only to educate the senior to this type of participation, but it is also educate the event organizers of this type of participation that extends the influence of their event.

Another aspect of virtual travel is travel logs of places where people want to visit. Many destinations have webcams. The virtual travelers could experience their destination in an indirect form. What would make this experience better for the virtual travelers would be individuals who could interact through social media with individuals on a constant basis to give them a flavor of the location and become virtual friends which are an indirect way of experiencing a location. People, in many instances, are the primary attraction in the destination. This type of interaction would make the destination alive and the participant could become directly involved in the community.

Another of the virtual experiences is the communication with family and friends. It must be noted that the virtual aspect is from individual interaction with significant people to distance events and interacting and making new friends. This type of format allows the participant to develop a sense of involvement and ownership. It is the interaction that brings this experience, makes it real, and allows the participant to grow and develop new relationships. As these relationships are developed, meaning in life occurs, and this adds a functional dimension to the seniors' life. It must be recognized, at this point, that virtual experiences are static, but one that involves interaction makes the experience so much better.

This type of travel experience is not well documented, but holds potential for those individuals who use technology to add additional functional dimensions back into their life. Although the primary experience or direct experience may be the best, new experiences built with visual technology and social media, providing an indirect experience, if structured properly, can provide significant depth to seniors' later lives. It allows one to visit and revisit, interact, and see a destination change that has the greatest potential for a senior to enjoy a virtual experience.

5.2 Leisure

The traditional definition of leisure is activities that are purposeful during free time. There are many other definitions of leisure, but the most of them have the free time component. In this particular case, the definition is one that incorporates any activities through use of technology to find meaning or purpose. The obvious activity using a computer for leisure is online games and activities that act as a diversion. Some activities are meaningful and are essentially educational that may help seniors to develop new skills and expand social network that provide new avenue or opportunities for new adventure. These types of activities add a new dimension to the seniors' life, and may also add additional functional skills to cope with age-associated problems.

Leisure, in this context, is to create interest and help solve problems. It must be recognized that most of the motivation may not be intrinsic, but extrinsic. It will require a well-structured program by an outside agency to help seniors find their interests, and develop programs that will ensure participation satisfaction. The programs will be tied to a social network and may take other seniors to stimulate and implement the program. It must be remembered that the programs ultimately have to be determined by the seniors themselves. It is essential that the program must not relate to traditional programs that have mass appeal, such as bingo, crafts, etc. There is a definite place for these large group programs, but individualization here is extremely important. Individualization is what was stressed in the first part of this paper because of the nature of learning to use the computer. The programs should be introduced at the same time that the technology is learning to be used. In this way, there is a subtle integration of these new programs and they can be used as an example in how to use technology. This type of program is very labor intensive. Agencies that choose to develop this type of approach have to depend on intergenerational volunteers, senior volunteers, family, etc. In this program, the benefits and outcomes must be immediate, so that there is not a great level of frustration. Success will alleviate anxiety and help to develop a program that is sustainable for the individual.

5.3 Safety

One primary concern influence decisions of seniors is safety. This is the first concern of families in regard to their loved ones. Technology has the ability to simplify one's life, as well as provide a safety net. New technologies provide for continuous monitoring of seniors. Sometimes this type of monitoring is obtrusive and the only condition that will require this approach is a life threatening illness. A more subtle form of monitoring based upon self-administration is far more acceptable, and this new form has helped to make this use almost at an invisible process.

The other concern on safety is related to seniors' travel. This could be the number one concern of seniors who plan to travel. Destinations wanting to do business with seniors have to provide the necessary technology to ensure their security and safety, and this has to be a part of the destination marketing program. This technology, in regard to safety, must be very visible and the seniors must know how to utilize the technology to alert authorities to the conditions where they feel unsafe. If technology is not used, security must be very visible and it must have a reputation for being effective. Also this security must have a high degree of friendliness and helpfulness to create the proper atmosphere. This atmosphere cannot seem like a military state. It is also essential that the senior have a program in which they know how to defend themselves against crime. This type of program must be generalized, provided by the travel professionals, and reinforced by the destination where the senior is traveling.

Additional element involving safety is of health. Seniors have to take their own responsibility for ensuring their health before traveling. This is an extremely critical element because many destinations do not have the quality of healthcare that seniors demand. An essential part of travel for the senior is travel insurance that will provide an emergency flight back to the United States for care in the case of traveling outside of the United States. The seniors must also inform the destination, cruise line, or resort of their health conditions. This can be planned in advance to avert emergencies. Most of the time, health is one of the forgotten areas when senior travel, but all members of the destination team must be informed about health issues. This includes airports, transportation, hotels, destinations, etc. The ultimate persons responsible for health are the seniors themselves by informing all travel professionals about their conditions.

5.4 Travel Clubs

One of the most popular forms of travel among seniors is through clubs they are associated with. These could be institutions, such as churches, senior citizen centers, etc. Some seniors may join commercial travel clubs, but most of seniors prefer to involve some kind of nonprofit institution for leisure travel. These individuals travel as a group and feel very safe and secure. Many of they also have their own social group. They are familiar with each others in the group and feel comfortable traveling together. These clubs are often escorted and provide great value. Most of these clubs are not luxury travel, but provide basics. These clubs usually do not go to exotic places, but focus more upon the social nature of the experience. Technology, in the nonprofit setting, is often limited. The primary technology often associated with personal devices. These may include regular telephones, smart phones, cameras, etc. These individuals often travel by bus, and as a result, the bus company selected does have a small array of technologies. Internet access is variable depend on properties visited.

Many commercial agencies provide travel service for seniors, but they focus more upon the upscale travel. However, it also provides social opportunity since people travel together for days. Often times, status or prestige is associated with these types of travel clubs. Many of them like to visit exotic destinations. It is the seniors' opportunity to brag about where they have been and what they have done in comparison to other individuals. The cost of these excursions is very pricey and it does provide many amenities. The nature of the social group is not as tight as with the nonprofit clubs. The nonprofit has more of a friendly atmosphere, whereas the commercial operations are on more of a traveling companion basis. Technology, in regard to the commercial travel agent is again primarily related to personal devices. The technology is often increased by the choice of mode of travel, as well as the type of property where they stay. The more luxurious properties have a greater availability of technology.

The one important element regarding to seniors' travel experience that must not be overlooked is their companionship from family members. This has been an arising scenario in the travel business, and it creates a very comfortable environment for the senior to travel. The family provides the best atmosphere, as the individuals are treated with great respect and are able to be with their relatives while enjoying vacation spots. Many times seniors also provide babysitting and other services to the family, which helps in their role as an active family member. One of the downsides is that there is no one of their age who can relate directly to their experiences. This does not provide for an enrichment experience, but one that has a more passive basis. Technology, in this context, is one of assistance and an intergenerational vehicle. This often times is where the senior learns and develops a relationship with the children to share experience how to use technology.

5.5Technology Facilitates Travel

Finally, not all older folks have trouble to use technology. Some of them have a great ability to use it. They use such websites such as trip advisor.com, hotels.com, etc. to plan their own trips. They prefer a lifestyle that is freer of tourist areas. Those seniors are often very adventurous and love to seek out unique places. They usually have high dollars invested in technology. GPS is a favorite technology of those seniors. Many of these individuals are not high-end travelers, but prefer more of a native approach to lodging and restaurants. They love to learn the culture in the local community and seek to understand the nature of individuals who live in the visited destination. They are very experienced travelers, love to choose a remote area as a destination. Even though they are very technologically savvy, they shy away from using it at those destinations until they return to their normal lifestyle. Sophistication is often their motivations to travel and they demand for greater authenticity. This category of travelers is ever changing the landscape of tourism service industry. As new destinations are found and different generations of seniors with different needs and demands are exposed, this is a new area to be studied. .

6.0 Conclusion

Given the fact that technology is nowadays reshaping everyone's daily life, the adaptation to technology becomes necessary for seniors to maintain independent living and enhance their social-psychological wellbeing. Part one of this manuscript addressed issues about the adaptation of using technologies and brought to light of various approaches to help seniors to learn how to use technologies. We recommend an individualized instruction as an effective approach toward a senior's learning technology.

The second part of manuscript discussed the various lifestyles, especially including domains of leisure and travel and how technology has directly influenced such lifestyle among seniors. As baby boomers are growing older, there will be more technically savvy seniors. That will change the landscape of technology among older population. The, the one primary problem regarding seniors' adaptation to new devices is the rapid changes of technology and difficulty to keep up with these changes. Many seniors are very rigid, and once they learn a particular technology, they are not willing to change. The professional supports for seniors to stay on the cutting edge of new technologies is necessary that may inspire seniors to make these changes toward a new technology.

Table 1

Attitude Open Mild engagement/Incentive Strong encouragement/Conditional/Have an issue with loss of function

Table 2

Skill Level Always use Some use/minimal help to get started/self help Little experience/medium help with periodic help No experience/maximum help with continuous follow up

Table 3

Type of technology Home Appliances Telephone Computer Tablets

Table 4

Health/Input Type

No adaptation Specialized keyboard/big keys and color Keyboard with touch tool

Touch screen

Finger Tool

Voice Good speech/enunciation Enunciation help/better quality of voice recognition

Table 5

Location

Senior center Neutral group setting Neutral individual setting Home

Table 6

Social group/setting

Unfamiliar social group Friends Individual professional Individual volunteer Family

Table 7

Example Leisure and Travel Resources for Seniors Computers http://www.telikin.com/ http://www.aplusseniorcomputer.com/ Access to Computer Technologies http://seniornet.org/ Travel Center http://travel.aarp.org/?mbox=tbr121213 Web Sites http://www.transitionsabroad.com/listings/travel/senior/KeyWebSites.shtml Topics http://www.usa.gov/Topics/Seniors.shtml Clubs http://www.willowvalleyretirement.com/c22/Clubs-Activities--Senior-Travel-Groups-Classes-for-Active-Retirement.htm#.VAC5fPldUW8

7.0 Reference

7.1 General

- Abidogun, B. G. (2011). Information and communication technology (ICT) use in teaching and learning at the pre-primary level in Nigeria: The role of the teacher. International Journal of Interdisciplinary Social Sciences, 6(1), 155-159.
- A review of wearable sensors and systems with application in rehabilitation.Journal of NeuroEngineering& Rehabilitation (JNER).2012, 9(1), 21-37.
- Blank, G., & Dutton, W. H. (2012). Age and trust in the internet: The centrality of experience and attitudes toward technology in Britain. Social Science Computer Review, 30(2), 135-151.
- Blažun, H., Saranto, K., & Rissanen, S. (2012). Impact of computer training courses on reduction of loneliness of older people in Finland and Slovenia.Computers in Human Behavior, 28(4), 1202-1212.
- Boulos, M. N. K., Anastasiou, A., Bekiaris, E., &Panou, M. (2011). Geo-enabled technologies for independent living: Examples from four European projects. Technology & Disability, 2(1), 7-17.
- Campbell, R. J. (2009). Internet-based health information seeking among low-income, minority seniors living in urban residential centers. Home Health Care Management & Practice, 21(3), 195-202.
- Charness, N., & Boot, W. R. (2009). Aging and information technology use: Potential and barriers. Current Directions in Psychological Science (Wiley-Blackwell), 18(5), 253-258.
- Chee Wei Phang, Sutanto, J., Kankanhalli, A., Yan Li, Tan, B. C. Y., & Hock-HaiTeo. (2006). Senior citizens' acceptance of information systems: A study in the context of e-government services. IEEE Transactions on Engineering Management, 53(4), 555-569.
- Church, K., Weight, J., Berry, M., & MacDonald, H. (2010). At home with media technology. Home Cultures, 7(3), 263-286.

- Conway, S., & Crawshaw, P. (2009). 'Healthy senior citizenship' in voluntary and community organisations: A study in governmentality. Health Sociology Review, 18(4), 387-398.
- Cortes, U., Annicchiarico, R., Vazquez-Salcedo, J., Urdiales, C., Canamero, L., Lopez, M., Sanchez-Marre, M., &Caltagirone, C. (2003). Assistive technologies for the disabled and for the new generation of senior citizens: The e-tools architecture. Al Communications, 16(3), 193.
- Coughlin, J. F. (2010). Understanding the Janus face of technology and ageing: Implications for older consumers, business innovation and society. International Journal of Emerging Technologies & Society, 8(2), 62-67.
- Courtney, K. L., Demiris, G., Rantz, M., &Skubic, M. (2008). Needing smart house technologies: The perspectives of older adults in continuing care retirement communities. Informatics in Primary Care, 16(3), 195-201.
- Dethlefs, N., & Martin, B. (2006). Japanese technology policy for aged care.Science & Public Policy (SPP), 33(1), 47-57.
- Dorr, D. A., Wilcox, A. B., Brunker, C. P., Burdon, R. E., & Donnelly, S. M. (2008). The effect of technologysupported, multidisease care management on the mortality and hospitalization of seniors. Journal of the American Geriatrics Society, 56(12), 2203-2210.
- Eggermont, S., Vandebosch, H., & Steyaert, S. (2006). Towards the desired future of the elderly and ICT: Policy recommendations based on a dialogue with senior citizens. Poiesis& Praxis, 4(3), 199-217.
- Annonymous. (2011). Exploring the acceptance of telecare among senior citizens: An application of backpropagation network. Telemedicine & e-Health, 17(2), 111-117.
- Feist, H., Parker, K., Howard, N., & Hugo, G. (2010). New technologies: Their potential role in linking rural older people to community. International Journal of Emerging Technologies & Science, 8(2), 68-84.
- Gachet-Pá;ez, D., Aparicio, F., de Buenaga, M., &Padrón, V. (2012). Personalized health care system with virtual reality rehabilitation and appropriate information for seniors. Sensors, 12(5), 5502-5516.
- Gatto, S. L., &Tak, S. H. (2008). Computer, internet, and e-mail use among older adults: Benefits and barriers. Educational Gerontology, 34(9), 800-811.
- Geist, E. (2011). The game changer: Using Ipads in college teacher education classes. College Student Journal, 45(4), 758-768.
- Gilly, M. C., Celsi, M. W., &Schau, H. J. (2012). It don't come easy: overcoming obstacles to technology use within a resistant consumer group. Journal ofConsumer Affairs, 46(1), 62-89.
- Goldwater, J., & Harris, Y. (2011). Using technology to enhance the aging experience: A market analysis of existing technologies. Ageing International, 36(1), 5-28.
- Harrefors, C., Axelsson, K., &Savenstedt, S. (2010). Using assistive technology services at differing levels of care: Healthy older couples' perceptions. Journal of Advanced Nursing, 66(7), 1523-1532.
- Heerink, M., Krose, B., Evers, V., & Wielinga, B. (2009). Influence of social presence on acceptance of an assistive social robot and screen agent by elderly users. Advanced Robotics, 23(14), 1909-1923.
- Hernandez-Encuentra, E., Pousada, M., & Gomez-Zuniga, B. (2009). ICT and older people: Beyond usability. Educational Gerontology, 35(3), 226-245.
- James Campbell, R. (2008). Meeting seniors' information needs: Using computer technology. Home Health Care Management & Practice, 20(4), 328-335.
- Jones, A. (2011). The learning and support preferences of older adults with information and communication. International Journal of Technology, Knowledge & Society, 7(1), 149-164.
- Jones, C., &Czerniewicz, L. (2010). Describing or debunking? The net generation and digital natives. Journal of Computer Assisted Learning, 26(5), 317-320.
- King, C., & Workman, B. (2006). A reality check on virtual communications in aged care: Pragmatics or power? Ageing International, 31(4), 253-262.
- Kory, P. D., Eisen, L. A., Adachi, M., Ribaudo, V. A., Rosenthal, M. E., & Mayo, P. H. (2007). Initial airway management skills of senior residents: Simulation training compared with traditional training. CHEST, 132(6), 1927-1931.
- Lagana, L., Oliver, T., Ainsworth, A., & Edwards, M. (2011). Enhancing computer self-efficacy and attitudes in multi-ethnic older adults: A randomised controlled study. Ageing & Society, 31(6), 911-933.
- Lai, A. M., Kaufman, D. R., Starren, J., & Shea, S. (2009). Evaluation of a remote training approach for teaching seniors to use a telehealth system. International Journal of Medical Informatics, 78(11), 732-744.

- Lai, O. (2008). The enigma of Japanese ageing-in-place practice in the information age: Does digital gadget help the (good) practice for inter-generation care. Ageing International, 32(3), 236-255.
- Lam, L. & Lam, M. (2009). The use of information technology and mental health among older care-givers in Australia. Aging & Mental Health, 13(4), 557-562.
- Landon, B. E. (2012). Use of quality indicators in patient care: A senior primary care physician trying to take good care of his patients. JAMA: Journal of the American Medical Association, 307(9), 956-964.
- Lazar, J., & Jaeger, P. (2010). Reducing barriers to online access for people with disabilities. Issues in Science & Technology, 27(2), 68-82.
- Leung, B. S. S., Ma, T. K. W., Ng, & C. K. M. (2009). Linking elderly to holistic care services through integrated communication technology: The personal emergency link service rendered by the senior citizen home safety association in Hong Kong. Journal of Technology in Human Services, 27(1), 34-43.
- Lin, C. I. C., Wen-hui Tang & Fen-Yang Kuo. (2012). 'Mommy wants to learn the computer': How middleaged and elderly women in Taiwan learn ICT through social support. Adult Education Quarterly, 62(1), 73-90.
- Loh, P-K., Flicker, L., & Horner, B. (2009). Attitudes toward information and communication technology (ICT) in residential aged care in western Australia.Journal of the American Medical Directors Association, 10(6), 408-413.
- Lunn, D., & Harper, S. (2011). Providing assistance to older users of dynamic web content. Computers in Human Behavior, 27(6), 2098-2107.
- Magnusson, L., & Hanson, E. (2005). Supporting frail older people and their family careers at home using information and communication technology: cost analysis. Journal of Advanced Nursing, 51(6), 645-657.
- Mahoney, D. (2011). An evidence-based adoption of technology model for remote monitoring of elders' daily activities. Ageing International, 36(1), 66-81.
- Mann, W. C., Belchior, P., Tomita, M. R., Kemp, B. J. (2005). Computer use by middle-aged and older adults with disabilities. Technology & Disability, 17(1), 1-9.
- Martinez-Pecino, R., Lera, M. J., & Martinez-Pecino, M. (2012). Active seniors and mobile phone interaction. Social Behavior & Personality: An International Journal, 40(5), 875-880.
- Mates, B. T. (2004). Seniors and computer technology. Library Technology Reports, 40(3), 32-40.
- Marx, M. S., Cohen-Mansfield, J., Renaudat, K., Libin, A., &Thein, K. (2005). Technology-mediated versus face-to-face. Journal of Intergenerational Relationships, 3(3), 101-118.
- McDonald, T., & Russell, F. (2012). Impact of technology-based care and management systems on aged care outcomes in Australia.Nursing & Health Sciences, 14(1), 87-94.
- Matlabi, H., Parker, S. G., & McKee, K. (2012). Experiences of extra care housing residents aged fifty-five and over with home-based technology. Social Behavior & Personality: An International Journal, 40(2), 293-300.
- McMillan, S. J., & Macias, W. (2008). Strengthening the safety net for online seniors: factors influencing differences in health information seeking among older internet users. Journal of Health Communication, 13(8), 778-792.
- Molloy, D. W., Stiller, A. K., & Russo, R. (2000). Technology and educating seniors about advance directives. Educational Gerontology, 26(4), 357-369.
- Moore, T. J. (2009). College seniors to senior citizens: harnessing the e-connection. Gerontology & Geriatrics Education, 30(3), 254-266.
- Mori, K; Harada, E. T. (2010). Is learning a family matter?: Experimental study of the influence of social environment on learning by older adults in the use of mobile phones. Japanese Psychological Research, 52(3), 244-255.
- Mynatt, E. D., & Rogers, W. A. (2001). Developing technology to support the functional independence of older adults. Ageing International, 27(1), 24.
- Nimrod, G. (2010). Seniors' online communities: a quantitative content analysis. Gerontologist, 50(3), 382-392.
- Olson, K., O'Brien, M., Rogers, W., & Charness, N. (2011). Diffusion of technology: Frequency of use for younger and older adults. Ageing International, 36(1), 123-145.

- Pilotto, A., D'Onofrio, G., Benelli, E., Zanesco, A., Cabello, A., Margeli, M.C., Wanche-Politis, S., Seferis, K., Sancarlo, D., &Kiliash, D. (2011). Information and communication technology systems to improve quality of life and safety of Alzheimer's disease patients: a multicenter international survey. Journal of Alzheimer's Disease, 23(1), 131-141.
- Powe, B. D., Faulkenberry, R. C., Harmond, L., & Cooper, D. L. (2009). Evaluating the use of an audience response technology system to collect research data among African American elders. Ageing International, 34(1/2), 60-66.
- Preston, M. A., Blew, B. D. M., Breau, R. H., Beiko, D., Dake, S. J., & Watterson, J. D. (2010). Survey of senior resident training in urologic laparoscopy, robotics and endourology surgery in Canada.Canadian Urological Association Journal, 4(1), 42-46.
- Quinn, K. (2010). Methodological considerations in surveys of older adults: Technology matters. International Journal of Emerging Technologies & Society, 8(2), 114-133.
- Rosenberg, L., Kottorp, A., Winblad, B., &Nygard, L. (2009). Perceived difficulty in everyday technology use among older adults with or without cognitive deficits.Scandinavian Journal of Occupational Therapy, 16(4), 216-226.
- Salovaara, A., Lehmuskallio, A., Hedman, L., Valkonen, P., &Nasanen, J. (2010). Information technologies and transitions in the lives of 55-65-year-olds: The case of colliding life interests. International Journal of Human-Computer Studies, 68(11), 803-821.
- Sávenstedt, S., Sandman, P. O., & Zingmark, K. (2006). The duality in using information and communication technology in elder care. Journal of Advanced Nursing, 56(1), 17-25.
- Schwender, C., &Kőhler, C. (2006). Introducing seniors to new media technology: New ways of thinking for a new target group. Technical Communication, 53(4), 464-470.
- Shrewsbury, C. M. (2002). Information technology issues in an era of greater state responsibilities: Policy concerns for seniors. Journal of Aging & Social Policy, 14(3/4), 195.
- Siksa, C. (2007). Technology and public housing feature: Senior HUD staff inform OATHA conference. Journal of Housing & Community Development, 64(4), 32-33.
- Smith, T. J. (2008). Senior citizens and e-commerce websites: The role of perceived usefulness, perceived ease of use, and web site usability. Informing Science, 11, 59-83.
- Soar, J., &YoungjoonSeo. (2007). Health and aged care enabled by information technology. Annals of the New York Academy of Sciences, 1114, 154-161.
- Sokoler, T., &Svensson, M. S. (2007). Embracing ambiguity in the design of non-stigmatizing digital technology for social interaction among senior citizens. Behaviour& Information Technology, 26(4), 297-307.
- Sparrow, R., & Sparrow, L. (2006). In the hands of machines? The Future of Aged Care. Minds & Machines, 16(2), 141-161.
- Suto, S., &Kumada, T. (2010). Effects of age-related decline of visual attention, working memory and planning functions on use of IT-equipment.Japanese Psychological Research, 52(3), 201-215.
- Tseng, K. C., Chien-Lung Hsu, & Yu-Hao Chuang. (2012). Acceptance of information technology and the internet by people aged over fifty in Taiwan. Social Behavior & Personality: An International Journal, 40(4), 613-622.
- Vaapio, S. S., Salminen, M. J., OjanIatva, A., &Kivela, S-L. (2009). Quality of life as an outcome of fall prevention interventions among the aged: A systematic review. European Journal of Public Health, 19(1), 7-15.
- Van Der Kaay, C. D., & Young, W. H. (2012). Age-related differences in technology usage among community college faculty.Community College Journal of Research & Practice, 36(8), 570-579.
- Wang, A., Redington, L., Steinmetz, V., & Lindeman, D. (2011). The ADOPT model: Accelerating diffusion of proven technologites for older adults. Ageing International, 36(1), 29-45.
- Yamauchi, S. (2009). Advanced interdisciplinary human research in assistive technology for elderly persons and persons with disabilities. Advanced Robotics, 23(11), 1455-1458.
- Zwijsen, S. A., Niemeijer, A. R., &Hertogh, C. M. P. M. (2011). Ethics of using assistive technology in the care for community-dwelling elderly people: an overview of the literature. Ageing & Mental Health, 15(4), 419-427.

7.2 Type of Technology

- Ariani, A., Redmond, S. J., Chang, D., & Lovell, N. H. (2012). Simulated unobtrusive falls detection with multiple persons. IEEE Transactions on Biomedical Engineering, 59(11), 3185-3196.
- Christian Woetmann, N., & Ivor, A. (1999). Lifetime adaptable housing in Europe.Technology & Disability, 10(1), 11.
- Cohen-Mansfield, J., &Biddison, J. (2007). The scope and future Ttends of gerontechnology: consumers' opinions and literature survey. Journal of Technology in Human Services, 25(3), 1-19.
- Gallagher, C. (2012). Connectedness in the lives of older people in Ireland: a study of the communal participation of older people in two geographic localities. Irish Journal of Sociology, 20(1), 84-102.
- Githens, R. P. (2007). Older adults and e-learning: opportunities and barriers. Quarterly Review of Distance Education, 8(4), 329-338.
- Kaye, J. A., Maxwell, S. A., Mattek, N., Hayes, T. L., Dodge, H., Pavel, M., &Zitzelberger, T. A. (2011). Intelligent systems for assessing aging changes: home-based, unobtrusive, and continuous assessment of aging. Journals of Gerontology Series B: Psychological Sciences & Social Sciences, 66B(1), 180-190.
- Monk, A., Hone, K., Lines, L., Dowdall, A., Baxter, G., Blythe, M., & Wright, P. (2006). Towards a practical framework for managing the risks of selecting technology to support independent living. Applied Ergonomics, 37(5), 599-606.
- Rauhala, M., &Topo, P. (2003).Independent living, technology and ethics.Technology & Disability, 15(3), 205-214.
- Sokoler, T. T., &Svensson, M. S. (2007). Embracing ambiguity in the design of non-stigmatizing digital technology for social interaction among senior citizens. Behaviour& Information Technology, 26(4), 297-307.

7.3 Attitudes

- Bell, M. (2006). Encouraging technophobes: old dogs can learn new tricks. Multimedia &Internet@Schools, 13(6), 36-38.
- Christopher Sze Chong, L. (2010). Designing inclusive ICT products for older users: taking into account the technology generation effect. Journal of Engineering Design, 21(2/3), 189-206.
- Chu, R., & Chu, A. (2010). Multi-level analysis of peer support, Internet self-efficacy and e-learning outcomes the contextual effects of collectivism and group potency.Computers & Education, 55(1), 145-154.
- Cutler, S. J. (2005). Ageism and Technology. Generations, 29(3), 67-72.
- Demiris, G., Rantz, M. J., Aud, M. A., Marek, K. D., Tyrer, H. W., Skubic, M., &Hussam, A. A. (2004). Older adults' attitudes towards and perceptions of 'smart home' technologies: a pilot study. Medical Informatics & The Internet In Medicine, 29(2), 87-94.
- Dena Hsin-Chen, H., &Macer, D. (2006). Comparisons of life images and end-of-life attitudes between the elderly in Taiwan and New Zealand.Journal of Nursing Research (Taiwan Nurses Association), 14(3), 198-208.
- Durodoye, B. A., & Ennis-Cole, D. (1998). Empowering counselors to work with senior adult in the computer age. Educational Gerontology, 24(4), 359
- Harrill, R. (2004). Residents' attitudes toward tourism development: a literature review with implications for tourism planning. Journal of Planning Literature, 18(3), 251-266.
- Hernandez-Encuentra, E., Pousada, M., & Gomez-Zuniga, B. (2009). ICT and older people: beyond usability. Educational Gerontology, 35(3), 226-245.
- Larsson, E., Larsson-Lund, M., & Nilsson, I. (2013). Internet based activities (IBAs): seniors' experiences of the conditions required for the performance of and the influence of these conditions on their own participation in society. Educational Gerontology, 39(3), 155-167.
- Magnusson, L., Hanson, E., & Nolan, M. (2005). The impact of information and communication technology on family carers of older people and professionals in Sweden. Ageing & Society, 25(5), 693-713
- Mercer, Z. B., & Chiriboga, D. (1997). Using computer technology with older adults: A pilot study on advanced directives. Gerontology & Geriatrics Education, 18(1), 61.
- Morgan Morris, J. J. (1994). Computer training needs of older adults. Educational Gerontology,

- Rebok, G. W., Rasmusson, D., & Brandt, J. (1996). Prospects for computerized memory training in normal elderly: effects of practice on explicit and implicit memory tasks. Applied Cognitive Psychology, 10(3), 211-223.
- Renold, C., Meronk, C., & Kelly, C. (2005). Technology in community-based organizations that serve older people: high tech meets high touch. Educational Gerontology, 31(3), 235-245.
- Rodríguez, M. D., Gonzalez, V. M., Favela, J., & Santana, P. C. (2009). Home-based communication system for older adults and their remote family. Computers in Human Behavior, 25(3), 609-618.
- Smith, T. J. (2008). Senior Citizens and E-commerce Websites: The role of perceived usefulness, perceived ease of use, and web site usability. Informing Science, 1159-83.

7.4 Social Group

- Blanchard-Fields, F. (2009). Flexible and adaptive socio-emotional problem solving in adult development and aging.Restorative Neurology & Neuroscience, 27(5), 539-550.
- Blit-Cohen, E., &Litwin, H. (2004). Elder participation in cyberspace: A qualitative analysis of Israeli retirees. Journal of Aging Studies, 18(4), 385-398.
- Buys, L., Aird, R., & Miller, E. (2012). Active aging among older adults with lifelong intellectual disabilities: the role of familial and nonfamilial social networks. Familiesi in Society, 93(1), 55-64.
- Capel, S., Childs, S., Banwell, L., &Heatford, S. (2007). Access to information and support for health: some potential issues and solutions for an ageing population. Health Informatics Journal, 13(4), 243-253.
- Courtney, K. L., Demiris, G., &Hensel, B. K. (2007). Obtrusiveness of information-based assistive technologies as perceived by older adults in residential care facilities: A secondary analysis. Medical Informatics & the Internet In Medicine, 32(3), 241-249.
- Dena Hsin-Chen, H., & Macer, D. (2006). Comparisons of life images and end-of-life attitudes between the elderly in Taiwan and New Zealand.Journal of Nursing Research (Taiwan Nurses Association), 14(3), 198-208.
- Donorfio, L. M., Mohyde, M., Coughlin, J., &D'Ambrosio, L. (2008). A qualitative exploration of self-regulation behaviors among older drivers. Journal of Aging & Social Policy, 20(3), 323-339.
- Eakin, D. K., & Hertzog, C. (2006). Release from implicit interference in memory and metamemory: older adults know that they can't let go. Journals Of Gerontology Series B: Psychological Sciences & Social Sciences, 61B(6), 340-347.
- Fofanova, J., &Vollrath, M. (2012). Distraction in older drivers A face-to-face interview study. Safety Science, 50(3), 502-509.
- Gill, T., Taylor, A. W., &Pengelly, A. (2005). A population-based survey of factors relating to the prevalence of falls in older people.Gerontology, 51(5), 340-345.
- IrudayaRajan, S. S., Sankara, S. P., & Mishra, U. S. (2003). Demography of Indian aging, 2001-2051. Journal Of Aging & Social Policy, 15(2/3), 11-30.
- Jacko, J., Emery, V., Edwards, P. J., Ashok, M., Barnard, L., Kongnakorn, T., & ... Sainfort, F. (2004). The effects of multimodal feedback on older adults' task performance given varying levels of computer experience. Behaviour& Information Technology, 23(4), 247-264.
- Karahasanović, A., Brandtzæg, P., Heim, J., Lüders, M., Vermeir, L., Pierson, J., & ... Jans, G. (2009).Co-creation and user-generated content-elderly people's user requirements.Computers in Human Behavior, 25(3), 655-678.
- Karahasanović, A., Brandtzæg, P., Heim, J., Lüders, M., Vermeir, L., Pierson, J., & ... Jans, G. (2009).Co-creation and user-generated content-elderly people's user requirements.Computers in Human Behavior, 25(3), 655-678.
- Kolt, G. S., Schofield, G. M., Kerse, N., Garrett, N., & Oliver, M. (2007). Effect of telephone counseling on physical activity for low-active older people in primary care: a randomized, controlled trial. Journal of the American Geriatrics Society, 55(7), 986-992.
- Lewin, G., &Vandermeulen, S. (2010). A non-randomised controlled trial of the Home Independence Program (HIP): an Australian restorative programme for older home-care clients. Health & Social Care in the Community, 18(1), 91-99.

- Löfqvist, C., Nygren, C., Széman, Z., &Iwarsson, S. (2005). Assistive devices among very old people in five European countries.Scandinavian Journal of Occupational Therapy, 12(4), 181-192.
- Lorence, D. P., &Heeyoung, P. (2006). New technology and old habits: The role of age as a technology chasm. Technology & Health Care, 14(2), 91-96.
- Md. Nasir, M., Hassan, H., &Jomhari, N. (2008). The use of mobile phones by elderly: a study in Malaysia perspectives. Journal of Social Sciences (15493652), 4(2), 123-127.
- M& Iwase, H. (2005). Usability of touch-panel interfaces for older adults. Human Factors, 47(4), 767-776.
- Paquet, C., St-Arnaud-McKenzie, D., Zhenfeng, M., Kergoat, M., Ferland, G., &Dubé, L. (2008). More than just not being alone: the number, nature, and complementarity of meal-time social interactions influence food intake in hospitalized elderly patients. Gerontologist, 48(5), 603-611.
- Pfeil, U., Arjan, R., &Zaphiris, P. (2009). Age differences in online social networking A study of user profiles and the social capital divide among teenagers and older users in MySpace. Computers in Human Behavior, 25(3), 643-654.
- Romero, N., Sturm, J., Bekker, T., de Valk, L., &Kruitwagen, S. (2010).Playful persuasion to support older adults' social and physical activities.Interacting With Computers, 22(6), 485-495.
- Sayago, S., Sloan, D., & Blat, J. (2011). Everyday use of computer-mediated communication tools and its evolution over time: An ethnographical study with older people. Interacting With Computers, 23(5), 543-554.
- Scialfa, C. T., Pichora-Fuller, K., &Spadafora, P. (2004). Interdisciplinary research education in communication and social interaction among healthy older adults. Educational Gerontology, 30(9), 733-750.
- Seals, C. D., Clanton, K., Agarwal, R., Doswell, F., & Thomas, C. M. (2008). Lifelong Learning: Becoming Computer Savvy at a Later Age. Educational Gerontology, 34(12), 1055-1069.
- Van Den Berg, P., Arentze, T., &Timmermans, H. (2011). Estimating social travel demand of senior citizens in the Netherlands. Journal of Transport Geography, 19(2), 323-331.
- Skill Level
- Blažun, H., Saranto, K., &Rissanen, S. (2012). Impact of computer training courses on reduction of loneliness of older people in Finland and Slovenia.Computers in Human Behavior, 28(4).
- Jones, C. C., &Czerniewicz, L. L. (2010, October). Describing or debunking? The net generation and digital natives. Journal of Computer Assisted Learning.pp. 317-320.
- Kracker, J., Kearns, K., Kier, F. J., & Christensen, K. A. (2011). Activity preferences and satisfaction among older adults in a veterans administration long-term care facility. Clinical Gerontologist, 34(2), 103-116.
- Kumagai, F. (2001). Possibilities for using the internet in Japanese education in the information age society. International Journal of Japanese Sociology, 10(1), 29-44.
- Larsson, E., Larsson-Lund, M., & Nilsson, I. (2013). Internet Based Activities (IBAs): seniors' experiences of the conditions required for the performance of and the influence of these conditions on their own participation in society. Educational Gerontology, 39(3), 155-167.

7.5 Demographics

- Chau-wai Yan, E., & So-kum Tang, C. (2003). The role of individual, interpersonal, and organizational factors in mitigating burnout among elderly Chinese volunteers. International Journal of Geriatric Psychiatry, 18(9), 795-802.
- Davis, N. C., & Friedrich, D. (2004). Knowledge of aging and life satisfaction among older adults. International Journal of Aging & Human Development, 59(1), 43-61.
- Domingues, M., Ordonez, T., Lima-Silva, T., Torres, M., de Barros, T., &Cachioni, M. (2013). Social support network for the elderly attending the open University Program for Senior Citizens at the School of Arts, Sciences and Humanities, University of São Paulo, Brazil. Educational Gerontology, 39(3), 209-221.

Fauth, E., Zarit, S. H., Malmberg, B., & Johansson, B. (2007). Physical, cognitive, and psychosocial variables from the disablement process model predict patterns of independence and the transition into disability for the oldest-old. Gerontologist, 47(5), 613-624.

Fitzpatrick, T. R., McCabe, J., Gitelson, R., &Andereck, K. (2005). Factors that influence perceived social and health benefits of attendance at senior centers. Activities, Adaptation & Aging, 30(1), 23-45.

- Fortinsky, R. H., Fenster, J. R., & Judge, J. O. (2004). Medicare and medicaid home health and medicaid waiver services for dually and eligible older adults: risk factors for use and correlates of expenditures. Gerontologist, 44(6), 739-749.
- Goncalves, D. C. (2009). From loving grandma to working with older adults: promoting positive attitudes towards aging. Educational Gerontology, 35(3), 202-225.
- Haywood, K. L., Garratt, A. M., & Fitzpatrick, R. R. (2005). Quality of life in older people: A structured review of generic self-assessed health instruments. Quality of Life Research, 14(7), 1651-1668.
- Kruse, A., & Schmitt, E. (2006). A multidimensional scale for the measurement of agreement with age stereotypes and the salience of age in social interaction. Ageing & Society, 26(3), 393-411.
- Lee, P., Lan, W., & Yen, T. (2011). Aging successfully: a four-factor model. Educational Gerontology, 37(3), 210-227.
- Lippincott, G. (2004). Gray Matters: Where are the technical communicators in research and design for aging audiences? IEEE Transactions on Professional Communication, 47(3), 157-170.
- Liu, S., & Lin, C. (2012).Effect of factors with time-dependent covariates on the survival status of the elderly in Taiwan.Quality & Quantity, 46(1), 237-249.
- Lowe, P. A., & Reynolds, C. R. (2005). Do relationships exist between age, gender, and education and self-reports of anxiety among older adults? Individual Differences Research, 3(4), 239-259.
- Midlarsky, E., &Kahana, E. (1999). Altruistic moral judgment among older adults.International Journal of Aging & Human Development, 49(1), 27-34.
- Mitchell, J., Bradley, D., Wilson, J., & Goins, R. (2008). The aging farm population and rural aging research. Journal of Agromedicine, 13(2), 95-109.
- Phillips, D. R., Cheng, K. C., Anthony G. O., Y., &Oi-Ling, S. (2010). Person-environment (P-E) fit models and psychological well-being among older persons in Hong Kong. Environment & Behavior, 42(2), 221-242.
- Smith, A. E., Sim, J., Scharf, T., & Phillipson, C. (2004). Determinants of quality of life amongst older people in deprived neighbourhoods. Ageing & Society, 24(5), 793-814.
- Theurer, K., & Wister, A. (2010). Altruistic behaviour and social capital as predictors of well-being among older Canadians. Ageing & Society, 30(1), 157-181.
- Zaranek, R. R., &Chapleski, E. E. (2005). Casino gambling among urban elders: just another social activity? Journals of Gerontology Series B: Psychological Sciences & Social Sciences, 60B(2), 74-S81.
- Zhang, W., & Liu, G. (2007). Childlessness, psychological well-being, and life satisfaction among the elderly in China. Journal of Cross-Cultural Gerontology, 22(2), 185-203.
- Zautra, A. J., Finch, J. F., Reich, J. W., & Guarnaccia, C. A. (1991). Predicting the everyday life events of older adults. Journal of Personality, 59(3), 507-538.

7.6 Psychographics

- Cao, W., Chen, C., Hua, Y., Li, Y., Xu, Y., &Hua, Q. (2012). Factor analysis of a health-promoting lifestyle profile (HPLP): Application to older adults in Mainland China. Archives of Gerontology & Geriatrics, 55(3), 632-638.
- Cousins, S., &Witcher, C. G. (2007). Who plays bingo in later life? the sedentary lifestyles of 'little old ladies'. Journal of Gambling Studies, 23(1), 95-112.
- Dergance, J. M., Mouton, C. P., Lichtenstein, M. J., &Hazuda, H. P. (2005). Potential mediators of Ethnic Differences in Physical Activity in Older Mexican Americans and European Americans: Results from the San Antonio Longitudinal Study of Aging. Journal of the American Geriatrics Society, 53(7), 1240-1247.
- Freddolino, P. P., Lee, V. P., Chi-Kwong, L., & Cindy, H. (2010). To help and to learn: an exploratory study of peer tutors teaching older adults about technology. Journal of Technology in Human Services, 28(4), 217-239.
- Gierveld, J., & Van Tilburg, T. (1999). Living arrangements of older adults in the Netherlands and Italy: Coresidence values and behaviour and their consequences for loneliness. Journal of Cross-Cultural Gerontology, 14(1), 1+.
- Giles, L. C., Glonek, G. V., Luszcz, M. A., & Andrews, G. R. (2005). Effect of social networks on 10 year survival in very old Australians: the Australian longitudinal study of aging. Journal of Epidemiology & Community Health, 59(7), 574-579.

- Lucchetti, M., Spazzafumo, L., &Cerasa, F. (2001). Italian people aged 50–75 years enrolled in a health promotion program: health and lifestyle. Educational Gerontology, 27(6), 439-453.
- Novak, T. P., &MacEvoy, B. (1990). On comparing alternative segmentation schemes: the List Of Values (LOV) and Values And Life Styles (VALS). Journal of Consumer Research, 17(1), 105-109.

Stevens, F. J., & Kaplan, C. D. (1999). How ageing and social factors affect memory. Age & Ageing, 28(4), 379.

- Smith, G. C., &Sylvestre, G. M. (2001). Determinants of the travel behavior of the suburban elderly. Growth & Change, 32(3), 395-412.
- Tokarski, W. (1987). Leisure and Life-styles of the Elderly: outline of a research programme. European Journal of Education, 22(3/4), 327.
- Yeh, S., & Sing Kai, L. (2004). Living alone, social support, and feeling lonely among the eldery. Social Behavior & Personality: An International Journal, 32(2), 129-138.

7.7 Location

- Baiyewu, O., &Jegede, R. (1992). Life satisfaction in elderly Nigerians: reliability and factor composition of the Life. Age & Ageing, 21(4), 256.
- Breheny, M., & Stephens, C. (2010). Ageing in a Material World. New Zealand Journal of Psychology, 39(2), 41-48.
- Burholt, V. (2006). 'Adref': theoretical contexts of attachment to place for mature and older people in rural North Wales. Environment & Planning A, 38(6), 1095-1114.
- Brunnberg, L., &Frigo, A. (2012). Placemaking in the 21st-century city: introducing the funfair metaphor for mobile media in the future urban space. Digital Creativity, 23(2), 113-125.
- Capel, S., Childs, S., Banwell, L., &Heatford, S. (2007). Access to information and support for health: some potential issues and solutions for an ageing population. Health Informatics Journal, 13(4), 243-253.
- Cartwright, C. (2007). Affordable rental housing for older people in Australia. Annals of The New York Academy of Sciences, 1114, 258-266.
- Cerin, E., Sit, C. P., Man-chin, C., Sai-yin, H., Lok-chun Janet, L., &Wai-man, C. (2010). Reliable and valid NEWS for Chinese seniors: measuring perceived neighborhood attributes related to walking. International Journal of Behavioral Nutrition & Physical Activity, 784-97.
- Chalmers, S. A., & Coleman, E. A. (2006). Transitional Care in Later Life: Improve the Move. Generations, 30(3), 86-89.
- Chien-Chang, H., & Jun-Hao, C. (2011). A novel sensor-assisted RFID-based indoor tracking system for the elderly living alone. Sensors (14248220), 11(11), 10094-10113.
- Cox, E. O., Green, K. E., Seo, H., Inaba, M., &Quillen, A. (2006). Coping with late-life challenges: development and validation of the care-receiver efficacy scale. Gerontologist, 46(5), 640-649.
- Degraves, D. J., &Denesiuk, R. J. (2000). The seniors computer information program: a pioneer website for seniors. Educational Gerontology, 26(4), 345-355.
- Ekerdt, D. J., & Sergeant, J. F. (2006). Family things: attending the household disbandment of older adults. Journal of Aging Studies, 20(3), 193-205.
- Gallagher, S., & Keenan, M. (2000). Extending high rates of meaningful interaction among the elderly in residential care through participation in a specifically designed activity. Behavioral Interventions, 15(2), 113-119.
- Grzywacz, J. G., Arcury, T. A., Bell, R. A., Wei, L., Suerken, C. K., Smith, S. L., &Quandt, S. A. (2006). Ethnic differences in elders' home remedy use: sociostructural explanations. American Journal of Health Behavior, 30(1), 39-50.
- Hansen, E., & Gottschalk, G. (2006). What makes older people consider moving house and what makes them move?. Housing, Theory & Society, 23(1), 34-54.
- Hatchett, B., & Duran, D. A. (2002). An approach to community outreach practice in the 21st century. Journal of Community Practice, 10(2), 37-52.
- Heying Jenny, Z., Xiaotian, F., &Baozhen, L. (2008). Placing Elderly Parents in Institutions in Urban China: A Reinterpretation of Filial Piety. Research On Aging, 30(5), 543-571.

- Hikoyeda, N., & Wallace, S. P. (2001). Do Ethnic-Specific Long Term Care Facilities Improve Resident Quality of Life? Findings from the Japanese American Community.Journal Of Gerontological Social Work, 36(1/2), 83-106.
- Hui-Chuan, H., Chiung-Yi, T., Ming-Cheng, C., &Dih-Ling, L. (2010). Constructing area-level indicators of successful ageing in Taiwan. Health & Social Care in the Community, 18(1), 70-81.
- Jung Shin, C. (2004). Evaluation of community planning and life of senior cohousing projects in northern European countries. European Planning Studies, 12(8), 1189-1216.
- Kane, R. L., Bershadsky, B., & Bershadsky, J. (2006). Who recommends long-term care matters. Gerontologist, 46(4), 474-482.
- Kaczynski, A. T., Potwarka, L. R., &Saelens, B. E. (2008). Association of park size, distance, and features with physical activity in neighborhood parks. American Journal of Public Health, 98(8), 1451-1456.
- Kim, S. (2011). Assessing mobility in an aging society: personal and built environment factors associated with older people's subjective transportation deficiency in the US. Transportation Research: Part F, 14(5), 422-429.
- Kubo-Kawai, N., & Kawai, N. (2010). Elimination of the enhanced Simon effect for older adults in a three-choice situation: Ageing and the Simon effect in a go/no-go Simon task. Quarterly Journal of Experimental Psychology, 63(3), 452-464.
- Lai, O. (2008). The enigma of Japanese ageing-in-place practice in the information age:does digital gadget help the (Good) practice for inter-generation care?. Ageing International, 32(3), 236-255.
- McGarry, J. (2009). Defining roles, relationships, boundaries and participation between elderly people and nurses within the home: an ethnographic study. Health & Social CareiIn the Community, 17(1), 83-91.
- Murata, A., & Iwase, H. (2005). Usability of touch-panel interfaces for older adults. Human Factors, 47(4), 767-776.
- Nimrod, G., &Adoni, H. (2006). Leisure-styles and life satisfaction among recent retirees in Israel.Ageing & Society, 26(4), 607-630.
- Phillips, D. R., Cheng, K. C., Anthony G. O., Y., &Oi-Ling, S. (2010). Person-Environment (P-E) fit models and psychological well-being among older persons in Hong Kong. Environment & Behavior, 42(2), 221-242.
- Quine, S., & Morrell, S. (2008). Feeling safe in one's neighbourhood: variation by location among older Australians. Australian Journal of Rural Health, 16(2), 115-116.
- Reed, J., & Morgan, D. (1999). Discharging older people from hospital to care homes: implications for nursing. Journal of Advanced Nursing, 29(4), 819-825.
- Spence, S. A. (1993). Rural elderly African Americans and service delivery: a study of health and social service needs and service accessibility. Journal of Gerontological Social Work, 20(3/4), 187-202.
- Thomas, J. J., Walton, D. D., & Lamb, S. S. (2011). The influence of simulated home and neighbourhood densification on perceived liveability. Social Indicators Research, 104(2), 253-269.
- Vu, K. L., & Proctor, R. W. (2008). Age differences in response selection for pure and mixed stimulus-response mappings and tasks. ActaPsychologica, 129(1), 49-60.doi:10.1016/j.actpsy.2008.04.006
- Wiles, J. (2003).Informal caregivers' experiences of formal support in a changing context.Health & Social Care in the Community, 11(3), 189-207.

7.8 Input Type

- Baker, N. A., Rogers, J. C., Rubinstein, E. N., Allaire, S. H., &Wasko, M. (2009). Problems experienced by people with arthritis when using a computer. Arthritis & Rheumatism, 61(5), 614-622.
- Ball, L., Bradley, D., &Brownsell, S. (2011). Emotive computing may have a role in telecare. Journal Of Telemedicine &Telecare, 17(6), 279-280.
- Dickinson, A. (2005). Don't panic (smile)! How visually impaired students access online learning and giving realistic guidelines to academic staff at Coventry University. International Congress Series, 1282,836-840.
- Jimison, H., Pavel, M., McKanna, J., &Pavel, J. (2004). Unobtrusive Monitoring of Computer Interactions to Detect Cognitive Status in Elders. Plant Physiology, 136(1), 248-252
- Joyce, R., Gupta, G., &Rushby, J. (1990). Identity authentication based on keystroke latencies. Communications of the ACM, 33(2), 168-176.

- Kay, R. H. (2007). Learning performance and computer software: an exploration of knowledge transfer. Computers in Human Behavior, 23(1), 333-352.
- Keay-Bright, W., &Howarth, I. (2012). Is simplicity the key to engagement for children on the autism spectrum?.Personal & Ubiquitous Computing, 16(2), 129-141.
- Krohn, F. B. (2004). A generational approach to using emotions as nonverbal communication. Journal of Technical Writing & Communication, 34(4), 321-328.
- MiJeong, K., & Maher, M. (2008). The impact of tangible user interfaces on designers' spatial cognition. Human-Computer Interaction, 23(2), 101-137.
- Palenchar, J. (2008). Samsung cell launch to include more touchscreens.TWICE: This Week In Consumer Electronics, 23(16), 38.
- Soo Hyun, P. (2012). FEA for "fat-finger syndrome.".Machine Design, 84(8), 54-57.
- Tirloni, A., Peirão, R., Diogo Cunha dos, R., & Moro, A. (2008).Kinematic analysis of the traditional keyboard typing in computers using different inclinations.Fitness & Performance Journal (Online Edition), 7(1), 30-34.
- Woo, C., Evens, M. W., Freedman, R., Glass, M., Shim, L., Zhang, Y., & ... Michael, J. (2006). An intelligent tutoring system that generates a natural language dialogue using dynamic multi-level planning. Artificial Intelligence in Medicine, 38(1), 25-46.

7.9 Leisure and Travel

- Blazey, M. (1986). Research breathes new life into senior travel program. Parks and Recreation, 21(10), 54-56.
- Foret, C. M., & And, O. (1993). Leisure today--a society growing older: its implications for leisure. Journal of Physical Education, Recreation and Dance, 64(4), 29-59.
- Kerstetter, D. L. (1990, December). An exploratory study of the pleasure travel behavior of college-educated older adults. Dissertation Abstracts International, 51, 2156.
- Lee, B., Godbey, G., & Sawyer, S. (2003). The changing roles of computers and the Internet in the leisure lives of older adults. *Research Column*, Parks & Recreation, 22-28.
- Nimrod, G., &Rotem, A. (2012). An exploration of the innovation theory of successful ageing among older tourists. Ageing & Society, 32(3), 379-404.
- Nimrod, G., &Rotem, A. (2010). Between relaxation and excitement: Activities and benefits gained in retirees' tourism. International Journal of Tourism Research, 12(1), 65-78.
- Patterson, I. (2007). Information sources used by older adults for decision making about tourist and travel destinations. International Journal of Consumer Studies, 31(5), 528-533.
- Roberson, D. R. (2003). Learning experiences of senior travelers. Studies in Continuing Education, 25(1), 125-44.
- Winters, M., Voss, C., Ashe, M., Gutteridge, K., McKay, H., & Sims-Gould, J. (2014). Where do they go and how do they get there? Older adults' travel behaviour in a highly walkable environment. Social Science & Medicine (1982),
- Woods, L. L., & Daniel, L. G. (1998). Effects of a tourism awareness program on the attitudes and knowledge of older adults. Educational Gerontology, 24(1), 69-78.