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JOURNAL OF INFORMATION SYSTEMS APPLIED RESEARCH

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Seniors and Online Social Network Use

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Abstract

Online social networking has the potential to enrich the lives of the elderly by providing them with an easy way to stay in touch with friends and family. Seniors are the fastest growing demographic in online social networks. Marketers and advertisers are anxious to capture the attention and buying power of this demographic through this new channel. Yet very little is known about what influences seniors to use online social networks. This study uses results from a brief pilot study as well as theory and literature to build a conceptual model to examine what key factors influence seniors to use online social networks. The model that emerged describes ten key factors that influence use. Specifically the model indicates that perceptions of privacy, security along with Web experience and proclivity to give and get information are some of the key factors that influence elders to use online social networks. Finally using insights gained from the pilot and previous work in this area, a questionnaire to empirically validate the conceptual model is also presented. The model and the proposed questionnaire are a first step of an ongoing research project that also aim to provide others with a foundation to continue research in this area.

Keywords: Online Social Networking, Seniors, Social Networking Use, Web 2.0

1. INTRODUCTION

Information technology and the Internet are becoming a necessary resource for the convenience and enjoyment of individuals (Walsham, 2008). Web 2.0, the new and improved Web, has created a sophisticated user base with new online functionality and tools such as blogs, wiki's, online social networking. While earlier it was very static and mostly an information source, today the Web is more interactive and more collaborative (Anderson 2007). It gives users the opportunity to give feedback and comments.

As a result of Web 2.0, the Internet is changing from merely a place to get information or give information, to a place to access a whole set of interactive applications, online sharing, collaboration and ubiquitous commerce. In addition, the exponential growth in Internet access has created a similar growth in the number of Web users. In 2000, global Internet use was at 0.4 billion; the latest usage statistics from December 2009 indicates an increase in use to 1.8 billion users (Miniwatts Marketing Group, 2010). The growth in Internet usage in the past 9 years has thus been around 400 percent.

Social Networking is one of the many applications that emerged from Web 2.0 that has seen dramatic growth and popularity. One researcher calls it a place where you could "type yourself into existence or into being" (Macau 2009). Online social networking is described as online spaces that individuals use to present themselves and to establish or maintain connections with others (Ellison et al. 2006). Now social networking has become the 4th most

popular online activity ahead of email and it accounts for almost 10% of all Internet time. (Nielsen 2009).

As such, online social networking is currently in the midst of an explosion of popularity, as well as an explosion of questions about the costs, benefits, and future of this technology. For many users of the Internet, checking social networking sites has become part of daily computer usage, and numbers of these intensive users is rising rapidly (Smith, 2008).

While there are many social networking Web sites, the most common ones are facebook.com and myspace.com. These Web sites are often seen as relationship facilitators. Since February 2007, Facebook was the sixth most visited Web site in the United States as measured by average visits (Cain 2008). Studies cite a wide range of benefits that these users gain from social networking Web sites such as the ability to keep in touch with friends, to establishing new relationships with others, and to feeling a sense of community within the social network to which they belong. Niche groups operating in online social networks provide individuals of similar professions or interest an opportunity to pursue causes and share information that benefits group members. From a business standpoint, knowing who uses social networking sites and their motivations may facilitate marketing of products and services.

Predictably, social networks are increasingly looking for ways to profit from the sites' popularity. Businesses with a Web presence are beginning to utilize social network sites as a mechanism for targeting consumers as well as an engine for marketing and promoting their offerings. Organizations are finding that it is significantly cheaper to employ online social networking strategies than to pay for advertising. Using social networks, organizations are able to prescreen potential customers and connect with prospects on a personal level that would build trust and credibility. In 2009, organizations are expected to continue to look for ways to leverage the world's largest single marketplace in their businesses found in consumer social networks (Ogawa et al. 2006).

Yet there are many issues and challenges surrounding social networking ranging from the significance of such networking for human relationships (Pelling and White, 2009; Panzarasa et al, 2009) to persistent security-related concerns, both for younger people and for people of all ages (Tagvoryan and Briones, 2009). Some research questions its use with regard to workplace productivity (McAfee, 2009; Neumann et al, 2005). Still, increasingly, social networking is becoming a useful tool for business, education, government, and entertainment (Warr, 2008).

These social networking sites are especially popular among the 18 to 25 year old age group who are mostly composed of college students. However, the largest growth in users in the six months ending July 2009 has been from the over 55 age group with a growth of 514 percent (Owyang 2009). Consequently, research indicates that wired seniors are devoted Internet users with 69 percent of wired seniors going online on a typical day when compared to 56 percent of all Internet users (Owyang 2009).

Seniors are recognizing that they have a lot to gain from online social networking when compared to the majority users who engage in social networking. The elderly is an age group that is most prone to losing social ties and to isolation because of physical disparities and retirement from active employment (Fiori et al. 2007). They stand to gain a lot by acclimatizing themselves with social networking tools as a key means of communication. Online social networking applications would provide them with easy communication tools to increase their social interaction with their loved ones.

As businesses begin to use social networks for targeting and promotion, wired seniors can also use social network tools to investigate different products and services as well as engage in electronic commerce. As seniors are rapidly growing into a major segment in the online social networking market place, it is imperative for organizations to identify the nature and characteristics of this elderly social network user group. Wired seniors have the time as well as the discretionary income to fully utilize the tools offered through social networks to engage in and influence electronic commerce.

While there are several studies that investigate the characteristics of the majority online social network user group and what influences their use, there is no research that investigates online social networking seniors. Given that online social networking is still a growing phenomenon, academic research in this realm is still in its infancy. The practitioner literature presents anecdotal stories and conjecture of the emergence of social networking seniors as an importance target group that would influence

commerce but it lacks the rigorous research to provide details of this influence.

Given the state of the research and literature in this arena, the objective of this research study is to understand the use of social networking Web sites by seniors and to understand their attitudes towards social networking. In order to do so, this study attempts to formulate a conceptual model of what influences seniors to use social networking sites. Using results from a brief pilot study and an assessment of the relevant literature, a new conceptual model for social networking use by seniors is presented.

In so doing, this research could reveal findings that would be useful for marketers to identify how to better market to social networking seniors. Senior centers and other elder care institutions have much to gain from encouraging elders to adopt social networking websites. The findings could assist elder care facilities to increase social interaction within their facilities. Given the buzz and hype in the practitioner media about the growth in wired seniors who social network recently, this piece of research is a first step in presenting results that could both fill a gap in the existing research and provide important insights to the world of practice. In addition, it will add to the existing literature on elders and IT that would help provide insights on how to reduce the digital divide problem that has historically existed in the elderly population.

The rest of the paper is organized as follows. First, the paper discusses seniors and social networking, identifies the conceptual model used, and a description of how the model was developed. Next, the factors identified as potential influences on social networking usage are discussed, in the context of the existing literature and the pilot study. Then, the development of the questionnaire for the next phase of the study is presented. The paper concludes with final thoughts.

2. SENIORS AND INFORMATION TECHNOLOGY

Although considered the fastest growing population in the world (Kiel 2005), most believe that seniors have been bypassed by the Internet revolution due to insufficient literacy or familiarity with IT and the Web (Ogawa et al. 2006). While information technology innovations are rapidly changing and creating a variety of new applications and features online, relatively little attention is given to how seniors adopt and use these technologies and features. It is often assumed that the majority of seniors do not benefit from the growing Web presence in today's society.

Cognitive limitations related to memory use are cited as one of the key deterrents to seniors' Web savviness (Hendrix 2000). The healthcare industry specifically struggles in their efforts to use interactive aspects of the Web as a means of communicating, informing and gaining input from seniors (Kiel 2005). Yet, past research suggests that most seniors are interested in learning how Web tools can help them be informed and stay connected with the outside world (Temple et al. 1990). According to Gilly and Zeithaml (1985), elderly people, who are traditionally considered resistant to change, do adopt new technologies if they think they are suitable and easy enough to use. While past studies on seniors' use of social networks are meager, recent report indicates that one in five seniors in Canada visits online social networks (Larose 2008) in order to be in contact with grandchildren. Studies further suggest that training can change the elderly's attitude toward computers especially when influenced by loved ones such as grandchildren to adopt the technology (Mathur 1999).

As such, while in the past the senior population has been slower than other age groups in embracing the Internet, this trend is beginning to change. According to a Pew report (Fox et al 2001) as many baby boomers approach retirement age, seniors' use of the Internet is increasing dramatically. A technologically savvy group of seniors is beginning to utilize the convenience offered by the Web to gain access to information and engage in commerce. The Pew report further describes the characteristics of wired seniors as more likely than their offline peers to be married, highly educated, and enjoying relatively high retirement incomes. They are more devoted Internet users overall as 69 percent of wired seniors go online daily as compared to only 56 percent of all Internet users. Most seniors go online to email, to gather hobby information, news, health information, browsing "just for fun," and weather updates.

As the report also suggests, seniors represent a growing segment of Internet users that has more discretionary time and income than the average user to devote to online activities (Trocchia et al 2000). In addition, wired Web 2.0 seniors enjoy better health as they gain a greater sense of empowerment through their online interpersonal interactions. These

interactions promote their cognitive functioning and help them gain a greater sense of control and independence in their lives (Shapira et al 2007). As seniors are at risk of losing social ties due to retirement, isolation and age related health issues, they stand to gain a lot through the use of social networking sites (Fiori etal 2007).

Not only do social networks enable seniors to increase their social bonds with loved ones, they help them get acquainted with other seniors with similar interests. The senior care facilities and senior centers could also benefit from developing an online social networking presence. These institutions can use social networks to extend the communication and socializing aspect at their institutions online as well as publicize events, encourage participation and enhance seniors' lives through increased mental stimulation and social interaction.

3. RESEARCH METHODOLOGY

The research method for this paper has two phases. In the first phase, a pilot study was conducted where a series of semi structured interviews were conducted on three staff members of a senior center along with five seniors each lasting 30 to 45 minutes. A summary of the results of the interviews from the perspective of the seniors as well as the IT staff is presented in Appendix A.

In phase two, the results from the pilot were combined with literature and theory related to online social networking to create a conceptual research model presented in Appendix B. In the study's second phase, a survey instrument was also developed to test the overall model (See Appendix C). This paper focuses on the second phase of the study. In the phases to follow, data will be collected by seniors and the survey instrument will be validated to validate the conceptual model described in this paper.

4. FACTORS THAT INFLUENCE SOCIAL NETWORKING

Traditional face to face social networking behavior has been a focus of academic study for many years. In fact, traditional social networking behavior of seniors is an area of extensive research that is often motivated by the need to understand social isolation of the elderly (Gilly et al. 1985). While offline social networking behavior has been extensively studied, online social networking is a relatively recent phenomenon. Yet, recently it has been the focus of much interest by academics as well as practitioners. Online social networking behavior of seniors is still an area of growing interest that is much less understood. This paper attempts to fill this gap by investigating what factors influence seniors' social networking use. As described previously, in the second phase of the study, a model for social networking use by seniors was developed. The factors presented in the model are described next.

Perceived Privacy, Security and Trust

Most of the early studies in online social networking focus on the importance of privacy, security and trust as they apply to revealing personal information online. One of the first studies to investigate these three factors in the context of online social networking was an ethnographic study of the first popular social networking site, Friendster (Boyd 2004). The study documents the influence of privacy, security issues on member participation and the maintenance of friendship connections. It describes members' perceived trust in creating their profile with the intention of communicating news about themselves to others. Another study of trust in virtual communities concluded that trust affected intentions to both give and get information, and that trust was raised when individuals had a higher trust disposition, and when they experienced positive relationships in the community (Ellison et al 2006). Several other studies have examined social networking sites by analyzing profile information and member surveys to understand privacy, security and information sharing practices (e.g., Acquisti and Gross, 2006; Stutzman, 2006).

A study examining how privacy, security and trust influence social interactions by comparing the two popular social networking sites, Facebook and MySpace revealed that online relationships can develop in sites where perceived trust and privacy safeguards are weak (Dwyer 2007). More recent studies of privacy and security issues have focused on the rise of legal concerns about websites such as Facebook, asking questions about who is required to protect privacy and how, especially when users have made information publicly available, and discussed Facebook's policies on privacy settings as a way of addressing such concerns (Tagvoryan and Briones, 2009; Flint, 2009). Another recent study of adolescent disclosure of personal information on web sites used survey data from middle school students to show that

students had higher levels of privacy concern when they perceived higher levels of risk, but lower levels of privacy concern when they perceived higher levels of benefit from sharing information, and that their levels of privacy concern did affect usage behaviors (Youn, 2009).

While past literature reveals many studies that look at the influence of perceived privacy, security, and trust on online social network among college students, there are hardly any that focus on seniors. However, a recent study that examined age as a major factor that influences social network use indicated that as age increases, perceptions of privacy, security and trust in the online social network decreased (Nosko et al 2010). The interviews during the pilot also further revealed that seniors feared entrapment and security concerns when interacting online. Given the support from the literature for its inclusion and confirmation from the pilot interviews, perceived privacy, security and trust were included as factors that influence online social networking.

Gender

Demographic factors as they influence social networking are another means of investigating social networking behavior that has received much attention in the past. Much like any other innovative information and communication technology (ICT), social networks are influenced by gender. A Pew survey of teenage social network users found gender differences that indicated that boys use these sites more frequently than girls in order to engage in flirting (Thelwall 2008). The academic literature is rich with studies that look at the impact of gender on Internet use (e.g., Chen 2007, Odell 2000). According to researchers, still much concern exists that gender differences influence Web based learning and Internet usage patterns. It is widely asserted that female usage of the Internet is limited by their negative attitudes towards computers and new technology due to their less overall experience with the Internet when compared to men (Schumacher et al 2001). Investigation of gender difference in online communication suggests that females, more than males, tend to participate in online chat rooms (Louis, 2004, Verhaagen, 2005).

A recent study of profiles on MySpace suggests that elderly females have more male friends than female friends whereas elderly males have equal numbers of friends from both genders (Pfeil et al. 2009). The study certainly suggests that there may be differences between social networking behavior between elderly males and females. As such, these past findings indicate that gender can be an important determinant of online social networking use among elders.

Web Experience

Past literature identifies user experience with the web as major factor that influences adoption of new technology, and of usage of Web-based information systems in general (e.g., Yi and Hwang, 2003; Taylor and Todd 1995). Studies have found similar results regarding the usage of social networking sites (Eastin and LaRose, 2000). For example, a study of young adults suggests that people with higher levels of web experience and autonomy of use were more likely to be users of social networking sites (Hargittai, 2007). Studies have sometimes categorized users of online social networking according to their web experience profiles. One study divided users into three categories: passive users of the network, users who invite offline friends to join, and those who participate in the evolution of the network (Kumar et al, 2006).

When considering the elderly, past research indicates that adoption and interaction with ICT's are more favorable in the presence of similar experience in the past. According to Agarwal and Prasad (1999), a positive perception and the adoption of a new technology often results from experience with past similar technologies. This past experience can be a key factor for the elderly as they are more opposed to change than the younger generations. According to Gilly & Zeithaml (1985), when seniors identify with the new innovation based on their prior familiarity with similar technologies, they are more likely to attempt new applications such as social networks.

Computer Anxiety

A factor that has received much attention in the psychology and information systems research areas, researchers still debate as to if computer anxiety can be reduced or eliminated with training, better resources and support. Computer anxiety can be defined as generalized emotional distress or the tendency of an individual to be uneasy, apprehensive or phobic towards current or future use of computers (Igbaria & Iivari, 1995).

Much like prior experience, computer anxiety could have a critical impact on the use of social

networks by the elderly. Past literature on computer anxiety and seniors indicate that the anxiety to use computers influence the quality of life of seniors today (Karavidas et al 2005). Yet, other studies suggest that with baby boomers retiring, more computer savvy seniors are emerging online who have less computer anxiety than previous generations. During the pilot interviews, both the seniors and the senior center staff indicated that computer anxiety and computer phobia were a major barrier to computer use by the elderly. On the other hand, two other interviewed seniors who had worked with computers as part of their occupation prior to retirement indicated an openness and willingness to try out social networks as a way to better connect with society. Given the strong evidence from both literature and the pilot interviews, computer anxiety was included in the overall model for social networking use.

Social Norms

Social norms refer to the rules and codes of conduct and behavior within a particular community, group or culture that is accepted as normal (Kiesler et al. 1984). Many well established theories and literature in information systems highlight the importance of social norms to ICT acceptance, adoption, and use by the general population and by seniors (Mallenius et al 2007; Phang et al 2006). A recent study of adoption of new technology described 'information cascades' that can cause individuals to adopt the technology when they become aware of the adoption decisions of others (Chesney et al, 2010). As such, when perceived as the 'norm,' users tend to gravitate to adopt and use the technology to not only adhere to norms in society but also to benefit from the network effects that result. By its very nature, social network features encourage sharing, friend referral and interaction creating a new social norm for society at large. Consequently, more so than other age groups, elders may be prone to adopt social networks when referred to by friends and family to adopt this new technology.

Enjoyment

Motivation for use of an ICT can result from societal norms but also could be more intrinsic in nature. The perception of enjoyment from the activity might lead a user to use a specific technology more than other technology innovations. Enjoyment is defined as ''the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated'' (Venkatesh et al. 2003). The user acceptance literature in information systems identifies enjoyment as a importance factor that influences adoption. Enjoyment as an influential variable in usage is particularly important in the case of social networking sites (Yi and Hwang, 2003). These sites are comparable to online gaming in the fact that the motivation for use is highly associated with recreation and socializing. However, this may be especially true for young people (Boyd, 2007). There is some evidence that older users may be more focused on using online social networking for professional and business purposes, which may imply less emphasis on enjoyment ("Profiting from Friendship," 2010). However, retired seniors may perceive social networking as a more entertaining activity that helps them connect with loved ones. As such, enjoyment may influence them to more actively use online social networks.

Desire to Get and Give Information

While not greatly discussed in existing literature, the pilot study as well as the researchers own experience with online social networks led to the inclusion of the desire to get and the desire to give information as two key variables that influence social network use. While these are new variables within the social networking research arena, these variables are grounded in psychology and organizational learning (Mikami et al, 2010; Davenport and Klahr, 1998).

The organizational learning and knowledge management literature describes the desire to get information as a factor of importance to learning and knowledge creation (Grover and Davenport 2001). This study focuses on an individual's desire to get information for individual use in social interactions which may not result in knowledge creation for organizational use. Past studies in online social networking describe these sites as growing in popularity due to its ability to satisfy its user's desire for information about other users, and for information on events and activities that can be accessed from these sites (Boyd and Ellison, 2007).

Similarly the desire to give information is also a key reason for users to participate in social networking sites. Past studies indicate how users employ applications such as photo sharing and videos to share information and create unique personas online (Boyd 2007). Researchers suggest that social networking profiles are often

created to "manage impressions and write one self into existence." Given the ease with which one could create and maintain online relationships though social networks, users are encouraged to share information to create a community of friends and social interactions online. This is especially beneficial to the elderly and as noted in the introduction is cited as a primary motivation for the growth of seniors on social networks.

Use

Computer use is a factor that is of central importance to the information systems literature. With each new ICT that emerges with the rapid change of technology, information systems researchers attempt to understand the intention to use and the adoption of the new ICT. In the context of social networking use by seniors, use can be further investigated in terms of the intention to use, the intensity of the use as well as the patterns of use. In so doing, data collection in a future stage would enable more granular and richer analysis of the factors that influence social networking use by seniors.

Using the conceptual model described previously as the foundation, next, a questionnaire was developed. This proposed questionnaire was developed in order to validate and empirically test the conceptual model. The process used to develop this model is described next. This proposed questionnaire is presented to serve as an initial reference to other academics conducting research in this space.

5. SURVEY INSTRUMENT FOR SOCIAL NETWORK DEVELOPMENT

Straub et al (2004) contends that one of the challenges of positivist quantitative research is accurately capturing and measuring the social phenomena. Using existing measure when possible is encouraged in academic research; however, Swanson (1991) suggest that the context of existing research measures and questionnaires may not apply to a researcher's current project as the measures are deeply embedded in the research project that they pertain to. As such, it is best to exercise caution when adopting existing measures. Zmud et al (1991) suggests that existing measures should serve only as useful starting point in operationalizing variables of interest.

With that in mind, past literature and theory was utilized whenever possible to develop the questionnaire items. Where appropriate a deductive, iterative approach to item development was used to develop the items (Hinkin 1995). Multiple items were generated for each construct and refined through multiple iterations of review. Finally, five graduate student assistants were asked to pretest the online questionnaire. After several minor modifications were made, the resulting questionnaire contains thirteen constructs and is presented in Appendix C. Most of the questions employed a seven-point Likert scale anchored at strongly disagree (1) and strongly agree (7). This proposed questionnaire presents other researchers with some initial insights on building a research stream in this area.

6. CONCLUSION

This paper has described the development of a conceptual model on social networking usage by seniors as part of a larger ongoing research project. The results of the initial phase of the study is presented in this paper and describes ten factors as importance factors that influence senior social networking use. Each of these factors was identified and content validated through a pilot study along with a comprehensive literature review. While many of the factors identified are applicable to any age group, the literature and the pilot study suggests that seniors, when compared to other age groups, will vary widely on each of these dimensions. As such, this paper represents an initial phase of a proposed research project that seeks to identify and empirically validate the factors that influence social networking use by seniors. In the main phase of the study, a cross comparison field survey that examines social networking behavior of seniors and college students using the proposed model and questionnaire is expected to provide further empirical proof for the validity for the model proposed here. Currently, the main phase of the project is underway as sites are being identified for data collection.

While the vast majority of seniors do not surf online at present, this trend is likely to change as baby boomers retire. Marketers and online businesses are eager to understand and capitalize on this new growing online segment. As such, this research offers a first look at how to target this demographic. With information on what encourages the elderly to use social networks, elderly care institutions can better support seniors who use their facilities. Using these websites will in turn enhance the quality of life of the elderly as they use social networks as

a means to interact with their community and loved ones.

7. REFERENCES

Agarwal, R., & Prasad, J. A. (1999). Are individual differences germane to the acceptance of new information technologies? Decision Sciences, 30(2), 361–391

Acquisti, A., & Gross, R. (2006). Imagined communities: Awareness, information sharing, and privacy on the facebook. *Proccedings of the Privacy Enhancing Technologies Workshop (PET), 2006,*

Anderson, P. (2007). What is Web 2.0? Ideas, technologies and implications for Education. *TechWatch Report*. Joint Information Systems Committee.

Boyd, D. M. (2004). Friendster and publicly articulated social networks. *Proceedings of the Conference on Human Factors and Computing Systems, ACM, Vienna, 2004.,*

Boyd, D., & Ellison, N. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1)

Boyd, D. (2007). Why youth love social network sites: The role of networked publics in teenage social life. *The John D.and Catherine T.MacArthur Foundation Series on Digital Media and Learning, -*, 119-142.

Boyles, S. (2008). Facebook benefits extroverts most: Introverts log more time on social networking site, but have fewer friends, study shows. *WebMD*. Retrieved from http://www.webmd.com/sex-relationships/news/20080625/friend-website-benefits-extroverts-most

Cain. J. (2008). Online social networking issues within academia and pharmacy education. *American Journal of Pharmaceutical Education,* 72(1): 10.

Chesney, T., Foster, D., & Lawson, S. (2010). Explaining technology adoption with information cascades, a study of microblogging data (april 23, 2010). *Nottingham University Business School Research Paper no. 2010-09,*

Davenport, T. H., & Klahr, P. (1998). Managing customer support knowledge. *California Management Review, 40*(3), 195-208.

Dwyer, C., Hiltz, S. R., & Passerini, K. (2007). Trust and privacy concern within social networking sites: A comparison of facebook and MySpace. *Proceedings of the Thirteenth Americas Conference on Information Systems, Keystone, Colorado August 2007,*

Dyck, J.L., & Smither, J.A. (1994). Age differences in computer anxiety: the role of computer experience, gender, and education. *Journal of Educational Computing Research*, 10(3).

Eastin, M. S., & LaRose, R. (2000). Internet self-efficacy and the psychology of the digital divide. *Journal of Computer-Mediated Communication, 6*(1)

Ellison N,. Steinfeld C, & Lampe C. (2006). *Spatially bounded online social networks and social capital: The role of Facebook.* Paper presented at the annual conference of the International Communication Association, Dresden Germany.

Fiori K., Smith, J., & Antonucci, T. (2007). Social network types among older adults: A multidimensional approach. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences,* 62(6), 322-330.

Flint, D. (2009). Law shaping technology: Technology shaping the law. *International Review of Law, Computers & Technology, 23*(1), 5-11. doi:10.1080/13600860902742505

Fox, S, Rainie, L., Larsen, E., Horrigan, J., Lenhart, A., & Spooner, T. (2001, September). *Wired seniors: a fervent few, inspired by family ties.* Washington, DC: The Pew Internet & American Life Project. Retrieved on January 12, 2010 from http://www.pewinternet. org/reports/pdfs/PIP_Wired_Seniors_Report. pdf.

Fox, S. (2006). Are "wired seniors" sitting ducks? Retrieved on January 12, 2010 from http://www.pew internet.org/PPF/r/180/report_display.asp

Gilly, M. C., & Zeithaml, V. A. (1985). The elderly consumer and adoption of technologies. Journal of consumer research, 12, 353–357.

Grover, V., & Davenport, T. H. (2001). General perspectives on knowledge management: Fostering a research agenda. *Journal of*

Management Information Systems, 18(1), 5-21.

Gupta, G.K. (2006). Computer literacy: Essential in today's computer-centric world. ACM SIGCSE Bulletin, 38(2), 115-119.

Hall, G. (2007). Social networking trends for 2008? Pringo takes a look. *Social Media Method.* Retrieved on January 12, 2010 from http://www.socialmediamethod.com/blog/2007/12/22/social-network ing-trends-for-2008-pringo-takes-a-look/acces-ed

Happe, R.E. (2008, May). U.S. social networking application 2008–2012 forecast: Enterprise social networking takes hold*. IDC Market Analysis.* Retrieved on January 12, 2010 from http://www. idc.com/getdoc. jsp?containerId=prUS21215808

Hargittai, E. (2007). Whose space? differences among users and non-users of social network sites. *Journal of Computer-Mediated Communication, 13*(1)

Hendrix, C.C. (2000). Computer use among elderly people. *Computers in Nursing*, 18(2), 62- 68. Retrieved on January 12, 2010 from http://www.cinplus.com/ pt/re/cin/abstract.00002771-200003000-00013

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management, 21*(5), 967-988.

Igbaria, M., & Iivari, J. (1995). The effects of self-efficacy on computer usage. *Omeaga International Journal of Management Science, 23*(6), 587-605.

Karavidas, M., Lim, N.K., & Katsikas, S.L (2005, September). The effects of computers on older adult users. *Computers in Human Behavior*, 21(5), 697-71.

Kiel, J.M. (2005, March). The digital divide: Internet and e-mail use by the elderly. Informatics for Health and Social Care, 30(1), 19-23.

Kiesler, S., Siegel, J., & McGuire, T. (1984). Social psychological aspects of computer-mediated communication. American Psychologist, Vol 39(10), 1123-1134.

Kumar, R., Novak, J., & Tomkins, A. (2006). Structure and evolution of online social networks. *Proceedings of the 12th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining,* Philadelphia, PA, USA.

Larose L. (2008). Half of elderly Canadians online; nearly 1 in 5 of those social networking study. Retrieved on March 22, 2010 from http://daily gleaner.canadaeast .com /balance/article/427430.

Leavengood, L.B. (2001). Older people and internet use. *Generations*, 25(3). Retrieved on Maarch 22, 2010 from http://generations.metapress.com/content/q41l28p0u5276822/

Louis, L. (2004). Net-generation attributes and seductive properties of the internet as predictors of online activities and internet addiction. CyberPsychology and Behavior, 7, 333–349.

McAfee, A. (2009). *Enterprise 2.0: New collaborative tools for your organization's toughest challenges*. Boston, MA: Harvard Business School Publishing.

McCarthy, C. (2009). ComScore: In U.S., MySpace-Facebook race goes on. *CNET.* Retrieved on March 22 2010 from http://news.cnet.com/8301-17939 _109-10141752-2.html

Mikami, A. Y., Szwedo, D. E., Allen, J. P., Evans, M. A., & Hare, A. L. (2010). Adolescent peer relationships and behavior problems predict young
adults' communication on social networking websites. *Developmental Psychology, 46*(1), 46 –56.

Miniwatts Marketing Group.Internet world stats, 2010., May 8, 2010. Retrieved from http://www.internetworldstats.com/stats.htm

Neumann, M., O'Murchu, I., Breslin, J., & Decker, S. (2005). Semantic social network portal for collaborative online communities. *Journal of European Industrial Training, 29*(6), 472.

Nosko, A., Wood, E., & Molema, S. (2010). All about me: Disclosure in online social networking profiles: The case of FACEBOOK. Computer Human Behavior. 26(3) 406-418.

Ogawa, I. (2005) "The digital divide and the elderly. *Public Health Nursing*, 23(3), 69-71

Ogawa, M., Inagaki, H., & Gondo, Y. (2006) Usage of IT and electronic devices, and its structure, for community-dwelling elderly. In

Computers Helping People with Special Needs. Springer Berlin/Heidelberg, 752-758.

Owyang, J. (April 2009). The future of the social web. *ForresterResearch. http://www.forrester.com/rb/Research/future_of_social_web/q/id/46970/t/2*

Panzarasa, P., Opsahl, T., & Carley, K. M. (2009). Patterns and dynamics of users' behavior and interaction: Network analysis of an online community. *Journal of the American Society for Information Science & Technology, 60*(5), 911-932.

Pelling, E. L., & White, K. M. (2009). The theory of planned behavior applied to young people's use of social networking web sites. *CyberPsychology & Behavior, 12*(6), 755-759. doi:10.1089/cpb.2009.0109

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**.** Human Computer Behavior. 25(3) 645-658.

Prasad, U. (2008). Social networking offers an inexpensive and effective way for SMBs to connect with their customers and prospects. Retrieved on January 10, 2010 from http://www.ciol.com/ SMB/SMB-Featured-Articles/Feature/SMBs-re-cognize-benefits-of-social-networking/41108112 254/0/

Recruiting Trends. (2009). Data watch: Corporate social networking trends in talent management. Retrieved on March 22, 2010 from http://www.recruiting trends.com/online/research_corner/1284-1.html

Shapira, N. Barak, A., & Gal, I. (2007). Promoting older adults' well-being through Internet training and use. *Aging and Mental Health,* 11(5), 477-484.

Schumacher P. & Morahan-Martin J. (2001) *Gender, Internet and computer attitudes and experiences.* Retrieved on March 22, 2010 from http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VDC-423HJ18-6&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=f55ef06bb452b593a7fa1f51d7230a66

Smith, J. (2008). *Intreguing trends in social networking growth during 1H 2008.* Retrieved January 14, 2009, from http://www.insidefacebook.com/2008/07/27/intriguing-trends-in-social-networking-growth-during-1h-2008/

Straub, D. W. (1989). Validating instruments in MIS research. *MIS Quarterly, 13*(2), 146-160.

Stutzman, F. (2006). An evaluation of identity-sharing behavior in social network communities. *International Digital and Media Arts Journal, 3*(1)

Swanson, E. B. (1994). Information systems innovation among organizations. *Management Science, 40*(9), 1069-1092.

Sylvers, E. (2008). Social networking benefits from financial crisis. *International Herald Tribune.* Retrieved on March 22, 2010 from http://www.iht.com/articles/ 2008/11/02/business /boss03.php.

Tagvoryan, A., & Briones, J. M. (2009). Facebook and the evolution of online privacy. *Venulex Legal Summaries,* , 1-2.

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research, 6*(2)

Thelwall, M. (2008) Social Networks, Gender, and Friending: An Analysis of MySpace Member Profiles, *Journal of the American Society for Information Science and Technology*, 59(8):1321–1330

Temple, L.L., & Gavillet, M. (1990). The Development of Computer Confidence in Seniors: An Assessment of Changes in Computer Anxiety and Computer Literacy. *Activities, Adaptation, and Aging*, 14(3).

Trocchia. P.J. & Swinder, J. (2000). A phenomenological investigation of Internet usage among older individuals. *Journal of Consumer Marketing*, 17(7), 605-615.

Verhaagen, D. (2005). Parenting the millennium generation: guiding our children born between 1982 and 2000. Westport, CT: Praeger Publishers.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of

information technology: Toward a unified view. MIS Quarterly, 27(3), 425–478.

Walsham, G. (2008). ICT's and global working in a non-flat world. *Information technology in*

the service economy: Challenges and possibilities for the 21st century (pp. 13-25). Boston: Springer.

Warr, W. A. (2008). Social software: Fun and games, or business tools? *Journal of Information Science, 34*(4), 591-604.

Willis, S.L. (2007). Technology and learning in current and future generations of elders. *Generations,* 30(2).

Yi, M. Y., & Hwang, Y. (2003). Predicting the use of web-based information systems: Self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *International Journal of Human-Computer Studies, 59*, 431-449.

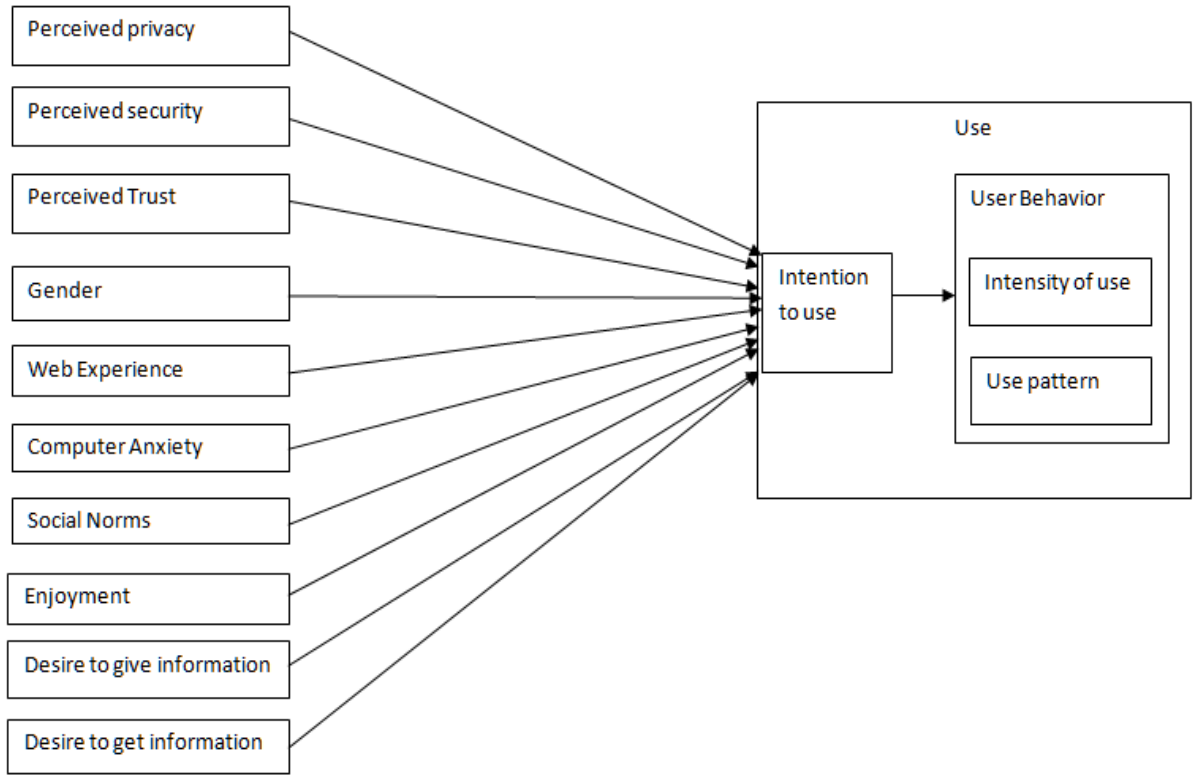
Youn, S. (2009). Determinants of online privacy concern and its influence on privacy protection behaviors among young adolescents. *The Journal of Consumer Affairs, 43*(3), 389.

Zmud, R. W., & Boynton, A. C. (1991). Survey measures and instruments in MIS: Inventory and appraisal. In K. L. Kraemer (Ed.), *The information systems research challenge: Survey research methods* (pp. 75-105). Cambridge, MA: Harvard Business School Press.

Appendix A: Seniors Perceptions on Online Social Networking

	Seniors	IT Staff
Use	Primarily photo sharing Use of internet groups such as Yahoo Groups Unclear what social networking is	A few of the seniors use Google chat if they have Google mail. Photo sharing
Benefits	Could use for interest groups; links to other sites. Center use for event posting/ announcements. Photo sharing all in one place Hospitality site for new members at the center. Less threatening way of meeting.	Help them reach out to former friends in a safe, non-threatening way Keep in touch with the grandchildren Overall, increase the quality of life by being involved with others.
Challenges	Threaten people's privacy Confusing to learn how to make use of it	Computer Phobia Many have never used a computer

Appendix B: Conceptual Model for Factors Influencing Seniors' Social Networking Use



Appendix C: Proposed Questionnaire

Perceived privacy
1. The personal information that I provide on this web site is secure.
2. This web site will not use unsuitable methods to collect my personal data.
3. This web site does not ask for irrelevant personal information.
4. This web site does not apply my personal information for other purposes.

Adopted with slight modification from - Chen, Yu-Hui, Barnes, S. (2007), Initial trust and online buyer behavior, Industrial Management & Data Systems, 107(1), pg 21-36.

Perceived security
1. I do not feel safe exposing my personal information when I buy goods online
2. This web site presents enough online security.
3. This web site has the ability to solve problems from hackers.

Adopted with slight modification from - Chen, Yu-Hui, Barnes, S. (2007), Initial trust and online buyer behavior, Industrial Management & Data Systems, 107(1), pg 21-36.

Perceived Trust
1. The performance of this web site meets my expectations.
2. This website is trustworthy.
3. I believe the information that this website provides.
4. This website does what it says.
5. This web site has a good reputation

Adopted with slight modification from - Wu and Liu (2007) The Effects of Trust and Enjoyment on Intention to Play Online Games Industrial Management & Data Systems, 107(1), pg 42-56; France Belanger, Janine S. Hiller1, Wanda J. Smith, Trustworthiness in electronic commerce: the role of privacy, security, and site attributes, Journal of Strategic Information Systems 11 (2002) 245–270.

Web Experience

On average, how much time per week do you spend on each of the following Web activities?
(Scale: None, 0–30 minutes, 30–60 minutes, 1–2 hours, 2–4 hours, 4–8 hours, 8_ hours)
1. . . . reading news on the Web?
2. . . . reading and/or posting messages?
3. . . . shopping on the Web?
4. …. All other Web activities?

Adopted with slight modification from – McKnight, Choudhury and Kacmar (2002), Developing and Validating Trust Measures for e-Commerce; Information Systems Research, Vol. 13, No. 3, September 355

Computer Anxiety
1. I hesitate to use a computer for fear of making mistakes that I cannot correct.
2. I feel apprehensive about using computers.
3. Anyone can learn to use a computer if they are patient and motivated.
4. I am confident that I can learn computer skills.

Adopted with modification from Heinssen, Jr., R., Glass, C, and Knight, L. (1987). Assessing computer anxiety: Development and validation of the Computer Anxiety Rating Scale. Computers in Human Behavior, Vol. 3 , pp. 49-59.

Enjoyment
1. Using this Website is exciting
2. I enjoy online social networking
3. Using this Website gives me a lot of pleasure

Wu and Liu (2007) The Effects of Trust and Enjoyment on Intention to Play Online Games Industrial Management & Data Systems, 107(1), pg 42-56

Subjective Norms

1. My relatives think that I should use this Website
2. My friends believe I should use this Website
3. My professors think I should use this Website
4. I believe that my classmates think 1 should use this Website

Source - Srite, M., & Karahanna, E. Role of espoused national cultural values in technology acceptance. Mis Quarterly, Sep2006, Vol. 30 Issue 3, 26p

5. People who influence my behavior think that I should use the system.
6. People who are important to me think that I should use the system.

Source - Venkatesh, Viswanath; Morris, Michael G.; Davis, Gordon B.; Davis, Fred D (2003), User acceptance of Information technology. ***MIS Quarterly***, Vol. 27 Issue 3, p425-478

Desire to get information

1. I generally like to find out as much as possible about people I know.
2. I like to get information on potential new friends when available.
3. I enjoy staying updated on my friends, family and acquaintances.
4. I sometimes browse the Web to find professional networking opportunities.

Desire to give information

1. I generally share photos and information about myself online with people I know.
2. I do not hesitate to react or give my opinion online to my friends, family and acquaintances.
3. I generally like to be the first to spread the word.

Intention to use

1. I will use the social networking site frequently in the future.
2. I intend to use the social networking Website.

Source - Wu and Liu: The Effects of Trust and Enjoyment on Intention to Play Online Games (Wu et al 2007)

3. I expect to use the social networking site in the near future.

Source - Valerie Priscilla Goby. CyberPsychology & Behavior. Theory of Planned Behavior as the basis for internet shopping – questionnaire, August 1, 2006, 9(4): 423-431.

4. I plan to use the social networking site.

Source - Venkatesh, Viswanath; Morris, Michael G.; Davis, Gordon B.; Davis, Fred D (2003), User acceptance of Information technology. ***MIS Quarterly***, Vol. 27 Issue 3, p425-478

Intensity of Use

1. In the past week, on average, approximately how many minutes per day have you spent on the social networking site?
   0 = less than 10,
   1 = 10–30,
   2 = 31–60,
   3 = 1–2 hours,
   4 = 2–3 hours,
   5 = more than 3 hours
2. Approximately how many times a day do you logon to social networking site?
3. The social networking site is part of my everyday activity
4. I am proud to tell people I'm on the social networking site
5. The social networking site has become part of my daily routine
6. I feel out of touch when I haven't logged onto the social networking site for a while
7. I feel I am part of the online social networking community
8. I would be sorry if the social networking site shut down

Source - Marshal, B., Cardon, P., Norris, D., Goreva, N., D'Sousa R. Social netoworking Websites in the United States and India. Issues in information systems, 9(2)87-94.

Use Pattern

1. Use the social networking site to connect with offline contacts
2. I have used the social networking site to check out someone I met socially
3. I use the social networking site to learn more about other people in my classes
4. I use the social networking site to learn more about other people living near me
5. I use the online social network to keep in touch with my old friends
6. I use the social networking site to meet new people

Source - Marshal, B., Cardon, P., Norris, D., Goreva, N., D'Sousa R. Social netoworking Websites in the United States and India. Issues in information systems, 9(2)87-94.