Use of Computers and the Internet by Older Adults in the United States and the People's Republic of China: A Cross-Cultural Study

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Abstract

Among the most important trends in both modern and developing nations are rapidly aging populations and huge advances in information communication technologies. In combination, these trends have profound implications for the lives of older adults, their health, and their use of leisure. This paper explores differences in the use of computers and the Internet by older adults in the United States and the China through an online survey conducted in 2002. Data was provided by a group of key informants from two countries (n=30). Results show that the key information provided by respondents in China in motivation, constraints, and benefits of the use of computers and the Internet by older adults significantly differences in comparing with that from respondents in the United States. Research implications for further inquiry on relevant issues are discussed.

Introduction

Among the most important trends in both modern and developing nations are rapidly aging populations and huge advances in communication technology. According to the US Bureau of Census (2000), people who are 65 years old and over comprise 12.7 percent of the U. S. population. In China, people who are 65 years and older compose 7.3 percent of 1.28 billion Chinese populations (The World Factbook, 2002). Simultaneously, more pervasive use of computers and especially the Internet is occurring. In the United States, two-thirds of the total population use computers and more than half of the nation is online on a daily base--143 million Americans use the Internet (The U. S. Department of Commerce, 2002). Internet users in China have also surged to 33.7 million by the year 2002 and 56.6 million people have access to the Internet from their homes (Shen and Wu, 2002).

In combination, these trends have may profound implication for the lives of older adults, their health and their use of leisure. Computer literacy may be a necessity for maintaining the independence of older adults in their later lives. As Baltes and Baltes argued, in their selective optimization with compensation model of aging (1990), knowledge-based use of technology can partially offset age-related declines. Communication technology may provide compensation for the changes associated with the aging process. Wright (2000) found that older adults who spent more time communicating on the Internet are more satisfied with their Internet support network than those who spent less time communicating on the Internet. In addition, the author reported that greater involvement with the on-line community was predictive of lower perceived life stress. Hence, the adoption of new technology by older adults appears to have the potential to generate positive health outcomes.

However, the previously mentioned dual trends also present a paradoxical phenomenon. As more individuals grow older, the use of the Internet and computers drops off dramatically. There are only an estimated 40 percent of 65-year-old Americans connected, 20 percent of 75-year-olds, and less than 10 percent of the "oldest old" who are aged 85 years and over (The U. S. Department of Commerce, 2002). In a similar report from China, in the year 2001, there were only 1.03 million Chinese citizens age 50

and over using the Internet (China Internet Information Center, 2001). The development and progression of technology in system design and the simplicity of user interface such as the windows operating system have brought empowering benefits to a wide range of society. However, little concern has been given to the rapidly increased aged segment of population. Historically, research has suggested that older adults often hold negative attitudes toward new technologies (Kerschner & Hart, 1984; Samli & Wills, 1986). Lower usage of computers by older adults may be due to many factors associated with aging. For example, educational background-related limits, system design-related usability, availability of help and learning facilities, discretionary income level, presence of a comfortable learning environment, and limited previous computer experience may more or less explain limitations of access to the communication technology by older adults.

The purpose of this study is, through investigating the use of computers and the Internet by older adults in the United States and in the People's Republic of China, to explore issues regarding older adults' accessibility to information communication technologies and offer suggestions for minimizing identified constraints. More specifically, the following research questions have been developed for this study:

RQ 1. What are the major constraints preventing or minimizing use of computers by older adults?

RQ 2. What differences exist between American and Chinese older adults in regard to their use of computers and the Internet?

RQ3. To what extent does the use of computers enhance the use of leisure, socialization and expressive needs by older adults?

RQ 4. What are possible strategies to make use of computers to contribute to better life for older adults.

Methods

This study was conducted through key informant surveys and interviews. A snowball sampling procedure was established by initially identifying a small number of informants through Penn State University's Gerontology Center Conference, "Impact of Technology on Successful Aging, 2001." The selection of informants was based on both positional and reputation considerations relating to their expertise in applications of computer-based information technologies and gerontology studies. Key informants are spokespeople who are asked to describe events, actions, and beliefs, as well as their attitudes based on their participation in and knowledge of an area (Jacob et al., 1997). A total of 30 informants (14 people from the United States and 16 informants from China) were either interviewed face-to-face or surveyed through a web-based online questionnaire (http://www.personal.psu.edu/staff/b/d/bdl125/C_survey.html). Data was analyzed using SPSS 11.5. T-tests were used to describe differences between two groups of respondents. T-tests were used to determine if differences exist between informants response (China vs. US) pertaining to constraints and benefits of using computers by older adults. Chi-square analysis was used to reveal if cultural environment was associated with factors that encourage older adults to use computers and the Internet.

Results

Results from the Chi-square analysis revealed significant differences between the two groups of informants relating to the source of motivation in the use of computers (X^2= 5.13, p<.05). The majority of informants in the US (78.6%) believed that relatives or friends had major impact for older adults beginning to use computers. Conversely, 62.5% of informants in China believed that workplace or community played key roles to initiate use of computers among older adults (Figure 1).

INSERT FIGURE 1 ABOUT HERE

Results from T-tests revealed significant differences between the two groups of informants regarding to the constraints in the use of computers and the Internet encountered by older persons (Table 1). Most of the informants in the US expressed more concerns than those in China on constraints produced by psychological factors (t =-4.23, p<.001), physical limitation (t =-3.33, p=.002), and "non-senior-friendly" interface design (t = -2.18, p<.05).

INSERT TABLE 1 ABOUT HERE

Results also indicated that informants in both countries agreed that computers and the Internet would likely satisfy older adults' needs for social interaction. However, they disagreed on compensations of loss in physical functions (t=2.36, p< .05) and improvements of overall life conditions (t=2.59, p<.05) through adopting computer-based technologies (Table 2).

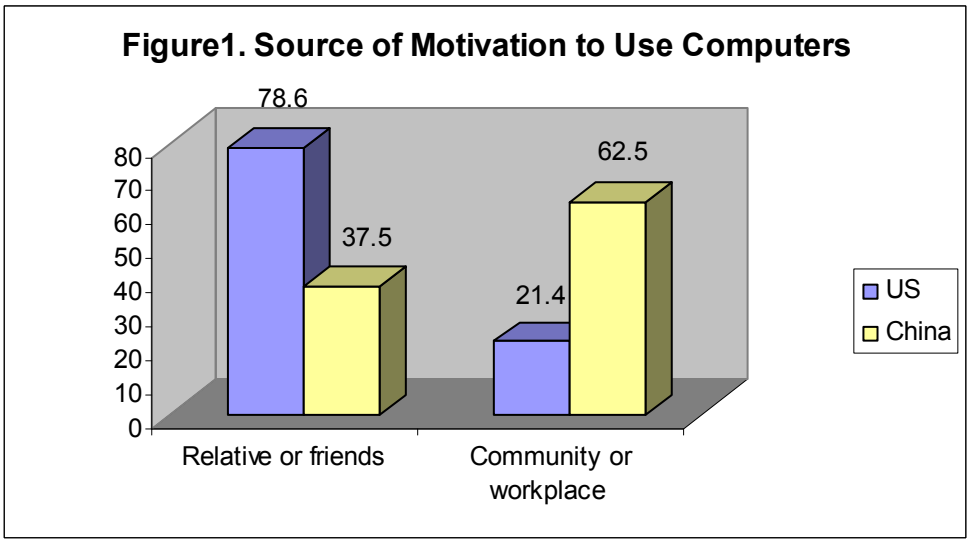
INSERT TABLE 2 ABOUT HERE

In response to the open-ended questions, informants offered suggestions for developing strategies to minimize constraints and maximize use of computers by older adults. The majority of informants advocated for "simplifying the end user experience" or "operating procedure," and "setting up training and support services to assist older adults to learn and to use computers."

Discussion

Results from this study confirmed that information provided by key informants in the US were different from that provided by Chinese informants in regard to the use of computers and the Internet among older adults. As a cross-culture, findings suggest research for explicit knowledge, in particular, knowledge on non-homogenous groups of the older adults' adoption and utilization of computers and the Internet in their late life is imperatively needed.

The additional implication of the findings from this study is that "the useful technology" does not necessarily mean "the useable technology." Without senior-friendly interface concerning their accessibility, learnerability, and usability, the advanced technology may further contribute to the gap of a "digital divide."



X^2 =5.13, P<.05

Table 1. Constraints in use of computers and the Internet by older adults

Items	Groups	N	Mean	S.D.	t	p
Psychological factors	US	14	2.62	1.27	-4.23	.000**
	China	16	1.04	.73		
Physical conditions	US	14	2.75	1.03	-3.33	.002*
	China	16	1.60	.88		
Interface design	US	14	3.33	1.09	-2.18	.038*
	China	16	2.42	1.19		
Provided services	US	14	3.32	1.10	-2.40	.023*
	China	16	2.18	1.44		

* p<.05
** p<.001

Table 2. Benefits in use of computers and the Internet by older adults

Items	Groups	N	Mean	S.D.	t	p
Overall life improvement	US	14	3.93	.71	2.36	.025*
	China	16	4.48	.57		
Compensate loss of cond.	US	14	3.38	.71	2.59	.015*
	China	16	4.06	.72		

* p<.05