

CREATE Symposium

S. Czaja, J. Sharit. *The Usability of Telephone Voice Menu Systems for Older Adults. Gerontechnology 2002; 2(1): 88.* The versatility, decreasing costs, and increasing power of telephone voice menu systems are expanding their use for a large variety of tasks. Unfortunately, many users have experienced difficulty and frustration using these systems. This paper presents findings from a series of studies that investigate the ability of older people to use telephone voice menus. The initial study examined if older adults encounter difficulty using real world telephone menu systems and to gather data on menu usability. Six real world telephone menu systems were examined. The sample included thirty-two adults aged 18-80 years. Participants used the menus to perform a sample set of tasks. The data indicated that older adults had more difficulty using the menus and that older adults found the system less usable than younger adults. The second set of experiments investigated how design features impact on user performance and the potential benefit of environmental support aids. Subjects from three age groups, younger (18-39), middle-aged (40-59), and older (60 and over) performed a set of tasks using simulated voice menu systems. Measures included: task performance, menu navigation, and subjective evaluations. Experiment 1 examined the effect of speech rate. Data from 196 subjects indicated age differences in performance, especially for complex problems. However, there was no effect of speech rate. Experiment 2 examined two types of support aids: a screen phone and a graphical aid. The older subjects benefited more from the graphical aid while the younger subjects performed better with the screen phone. These findings have implications for the design guidelines for these types of systems.

Key words: telephone voice menu system, usability, environmental intervention.

Author Address: 1695 N.W. 9th avenue, Miami, Florida 33136, USA, e-mail: sczaja@med.miami.edu

N. Charness, P. Holley, J. Feddon, T. Jastrzembski. *Input Devices: Minimizing Age Differences in Performance. Gerontechnology 2002; 2(1): 88.* A series of experiments examined the relative advantages and disadvantages of direct (light pen) and indirect (mouse) positioning devices. The tasks involved menu selection (pure pointing) and mixed pointing and data entry tasks. We also examined the role of practice and preferred versus non-preferred hands contrasting both experienced and inexperienced users. Experiment 1 showed that the light pen was significantly superior to the mouse for both middle-aged and older adults, despite the main effect of age on performance. The preferred hand was superior to the non-preferred hand. The interaction of trial block and device indicated that the mouse gained more from practice. Experiment 2 used the same menu selection task with young, middle-aged, and older adults who were experienced mouse users. We found main effects of age, hand, and device with the light pen yielding better performance than the mouse. Interactions indicated that the light pen minimized age differences, practice minimized age differences, and that the light pen minimized hand differences. However, preference and performance were unrelated. Experiment 3 investigated mixed pointing and data entry with younger, middle-aged, and older adult experienced mouse users. Main effects were observed for age, practice, and hand. A device by block by age interaction indicated that the mouse was superior to the light pen only for the young adults on early trial blocks. Older adults gained more from practice. We suggest guidelines for input device selection and training based on these findings.

Key words: input device, mouse, light pen, computer, ergonomics, human factors.

Author Address: Psychology Department, Florida State University, Tallahassee, FL 32306-1270, USA, e-mail: charness@psy.fsu.edu

W.A. Rogers, A.D. Fisk. *CREATE at Home: Human Factors Contributions to an Aware Home for Older Adults. Gerontechnology 2002; 2(1): 89.* The Center for Research and Education on Aging and Technology Enhancement (CREATE) is designed to determine the design and training needs for older adults' interactions with technology. In this presentation we will discuss the importance of these efforts for the development of technologies in the home. Maintaining functional independence is a high priority for many older adults. Often, staying in their homes is key to such independence. Computer technology has the potential to assist in this goal by supporting the everyday tasks of older individuals, as well as by aiding caregivers and family members. An "aware" home can provide support in numerous ways including: alerting the person to an emergency or hazardous situation (e.g., the stove left on); providing information about daily activities and long-term trends, and changes therein (e.g., reduced movements); providing support for daily activities such as medication monitoring or use of medical technologies; and also supporting social communication with family and friends. For these efforts to be successful, psychology must be involved and the research efforts of CREATE provide valuable direction. We will briefly discuss studies of health care technology, communication technology, and telemedicine. These examples demonstrate the complexity of the issues involved in designing the computationally capable home of the future and provide direction for future research and development efforts.

Key words: Technology, domotics, health care, telemedicine.

Author Address: School of Psychology, Atlanta, GA 30332-0170, USA, e-mail: wr43@prism.gatech.edu

J. Sharit, S. Czaja, M.A. Hernandez. *Assessing the Suitability of Telecommuting Work for Older Adults. Gerontechnology 2002; 2(1): 89.* This talk will present findings from a study designed to evaluate the suitability of telecommuting work for older adults. Fifty adults between the ages of 55 and 75 were trained to perform the task of a customer service representative on a simulated telecommuting task. The task required that they process e-mails sent by customers who had various questions regarding products they had purchased or intended to purchase from a company's website. Subjects had to open an e-mail, interpret it, and search through a database to identify and select all relevant items of information that would constitute a reply. The database consisted of a hierarchically organized set of menus containing information concerning the company's policies and procedures, and two tables that contained product, customer, and order information. Each experimental session lasted a maximum of 2 hours, and the participants were instructed to reply to as many of the 40 e-mails that were allocated to each session. The participants performed the task over a 4-day period, with 2 sessions on each day. Across sessions, the e-mails were constructed to address similar issues in order to maintain the level of complexity and novelty relatively constant. In addition to measures of cognitive abilities that were obtained from a battery administered prior to the study, data on task performance, personality, work involvement, job motivation, job satisfaction, job characteristics, and perceived workload and stress were collected. The findings will be summarized in terms of relationships between age, learning curves, information search capabilities, cognitive abilities, motivation, and job assessment factors, with the objective of understanding how the interplay between task-related and individual factors may predispose this type of work for older adults.

Key words: aging, telecommuting, simulation, search, cognitive ability, job satisfaction.

Author Address: University of Miami, Dept. of Industrial Engineering, P.O. Box 248294, Coral Gables, FL 33124-0623, USA, e-mail: jsharit@miami.edu