

Y-L. HSU (Convener). **Culture and social impact to gerontechnology in the Sinophone world.** *Gerontechnology* 2012;11(2):118; doi:10.4017/gt.2012.11.02.226.00 **Participants:** K-M. WANG (Taiwan), G. CHEN (China), Y-L. HSU (Taiwan), C-K. LIM (Taiwan). **ISSUE** It includes culture and social issues of gerontechnology, Chinese value and perspective of gerontechnology, current status of gerontechnology research in the Sinophone world (China, Taiwan, Hong Kong, etc.), and inspiration from Chinese culture in gerontechnology. **CONTENT** Research in gerontechnology generally emphasizes how technologies can be used to satisfy the needs of the elderly people. However, the success of a gerontechnology product or system also depends heavily on culture and social acceptance. The cultural and social diversity of different parts of the world has to be considered. Filial piety is a concept originating with Confucianism, and has been an essential element of Chinese culture. Basically, filial piety is concerned with the responsibility to care for, respect, and obey parents. Under this traditional value, such a strong emphasis on family ties, the practice of gerontechnology in the Sinophone world can provide a different perspective. Building an intuitive environment to enhance the interaction and interpersonal communication between the elderly people and their family members receives special attention. In the design process of gerontechnology products and systems, we also look to an abundant Chinese traditional literature for inspiration. In this special session, culture and social issues of gerontechnology, in particular, the Chinese value and perspective of gerontechnology are discussed. Current status of gerontechnology research in the Sinophone world is presented, and some gerontechnology design concepts inspired by ancient Chinese stories, poems, and other literature are also described. **STRUCTURE** The 4 paper presentations will be followed by Q&A and a general discussion. **CONCLUSION** We expect to give the audience a Chinese perspective on gerontechnology. We also hope to raise awareness of possible cultural and social issues in gerontechnology, and how these issues can be explored with a common understanding. This approach may give the development of gerontechnology products and systems a more solid foundation, better user acceptance, and a higher possibility of success.

Keywords: gerontechnology, Chinese culture, filial piety, culture and social issues

Affiliation: Yuan Ze University, Chung-Li, Taiwan; E: mehsu@saturn.yzu.edu.tw

K.M. WANG, K.H.C. WANG, Y.Y. CHUNG. **How Chinese culture connects to Gerontechnology.** *Gerontechnology* 2012;11(2):118-119; doi:10.4017/gt.2012.11.02.522.00 **Purpose** 'Family' and 'filial piety' are two major elements in Chinese culture. 'Family' is the priority core value in Chinese traditional perspective, and Chinese emphasize the importance of respecting and caring for older people. The Confucian canon 'The Great Learning' said: "Cultivate oneself and put family in order, then we could run the country well and give the world peace and security"¹. 'Filial piety' is an ancient traditional value in Chinese society, children are taught to show filial piety and to respect their parents, and children are asked to take care of their parents when parents are old. In the model suggested by 'Theory of Reasoned Action (TRA)²', 'family' and 'filial piety' also form the 'attitude' and 'subjective norm' in the Chinese society. This can greatly enhance the behaviour intention if included in the design of gerontechnology products. The purpose of this study is to describe products development based on technology adoption perspective, emphasizing the influence of Chinese culture in stages of technology adoption process. **Method** This paper discusses the antecedents, processes, and results of technology products adoption and usage by elderly people. In relation to gerontechnology, the value of technology, user interface design, and the applications of technology products can be mapped into the technology adoption process. Moreover, Chinese culture, especially filial piety, will also have an impact on the technology adoption process. **Results & Discussion** Based on understanding of the 'family', 'filial piety' and gerontechnology, we propose an adoption model (*Figure 1*). Taking cultural issue into consideration, we believe the behaviour intention relevant to gerontechnology products could be greatly strengthened.

References

1. Liji 禮記 [Records of ritual matters]; one of the five Confucian classics

2. Fishbein M, Ajzen I. Belief, attitude, intention, and behavior: An introduction to theory and research. Reading: Addison-Wesley; 1975
 Keywords: Chinese culture, filial piety, technology adoption. gerontechnology
 Affiliation: Lunghwa University of Science and Technology, Taiwan; E: che@mail.lhu.edu.tw
 Full paper: No

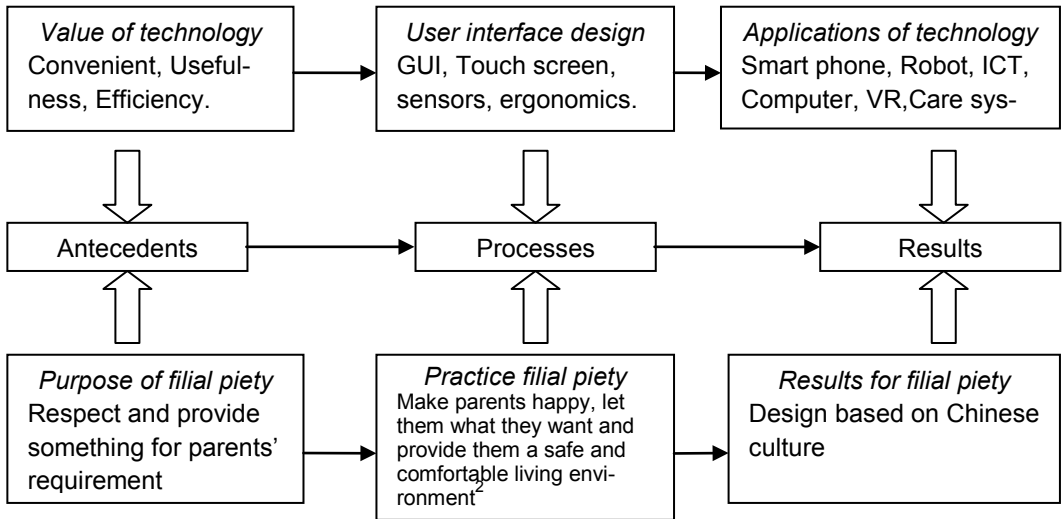


Figure 1. Technology Adoption Model for filial piety

C-B. LI, L. ZHOU, I. CHI, G. CHEN. **The owner of the communication tools influence on old people family interaction frequency.** *Gerontechnology* 2012;11(2):119; doi:10.4017/gt.2012.11.02.536.00 **Purpose** With the rapid development of China's economy and society, and the increasing popularity of technology, old people increasingly own communication tools. This paper explores the impact this has on the frequency of family interaction. **Method** We studied the Chinese urban and rural elderly population in 2006, using an ordinal logistic regression method to control for demographic characteristics (gender, age, educational level, marital status), economic status, and self-rated health factors. **Results & Discussion** The results show that the independent variable 'old people's ownership of communication tools (telephone & mobile phone)' makes a significant impact on family interaction frequency. Owning a telephone or a mobile phone leads to more frequent family interaction for the elderly. When the elderly have two communication tools, the family interaction frequency is 1.64 times greater than for elderly people without any communication tools, and it is 1.31 times higher than those who own one communication tool. At the same time, age, marital status and self-rated health make a significant impact on the frequency with which old people interact with their family. The correlations with age and marital status are negative, but self-rated health status is positively correlated. Older age group family interaction frequency is 0.42 that of the younger age group, married elderly family interaction frequency is 0.65 of the unmarried elderly. Good self-rated health status of elderly family interaction frequency is 1.52 times higher than the elderly with a lower self-rated health status.
 Keywords: communication tools, old people family interaction frequency, affect
 Affiliation: Peking University, Beijing, China; E: chengong@pku.edu.cn
 Full paper: No

Y-L. HSU, R-H. SU, Z. WANG. **Profile of the 'aging boomers' in Taiwan.** *Gerontechnology* 2012;11(2):119-120; doi:10.4017/gt.2012.11.02.283.00 **Purpose** It is generally agreed that the 'post-World War II baby boom' began in 1946, and lasted for about two decades. Baby boomers born in 1946 turned 65 in 2011, which marked the first year of the 20-year 'aging boom'. The profile of the aging boomers, so-called 'the new generation of older adults (NG)', will surely be

very different from that of the current generation of older adults (CG) who are 65 and older. This paper compiles related demographic data in Taiwan^{1,2} and compares the profiles of the NG and the CG. **Method** In this paper, NG is defined as population born from 1946 to 1966. The crude birth rate of Taiwan exceeded 32.5 every year in this period, with the peak value 49.0 in 1951. In 2010, life expectancy at age 65 is 19.2 years, and is projected to increase to 23.1 in 20 years, when the current 45-year-olds turn 65. The percentage of the population aged 65 and over is 10.7% in 2010, and is projected to be 25.8% in 2032. The old-age-dependency ratio is projected to rise from 14.6% in 2010, to 40.7% in 2032. To prepare for this unprecedented aging boom in Taiwan, there will be an immense demand for gerontechnology to support the future older adults to live independently. Moreover, according to the International Monetary Fund, Taiwan's per-capita GDP based on purchasing power parity (PPP), increased from USD 9,858 in 1990 to USD 35,604 in 2010. The NG will obviously have much greater purchasing power than the CG in their retirement years. This should make them more willing to pay for gerontechnology products and services. Family has been an important force for care provision for older adults in Taiwan. In 2009, 88.1% of the older adults aged 65 and older lived with their families. However, this will no longer hold true for the aging boomers due to the drastically declining birth rate in Taiwan. The average number of children for the NG is 2.53, compared with 3.99 of the CG. Moreover, the percentage of single and divorced persons increased from 6.53% of the NG to 18.84% of the CG. Families are also more scattered, as indicated by the rapidly declining average number of persons of a household from 3.3 in 2000 to 2.9 in 2010. In view of this change in family structure in Taiwan, one important direction in gerontechnology development is to link and organize family members to enhance the care function of the family, utilizing information and communication technologies. Educational level is an important factor for technological acceptance of the older adults; this has been an important challenge for developing gerontechnology products and services for CG. In Taiwan, the average educational level of the CG is slightly higher than elementary school, while the average education level of the NG is midway between junior high and senior high school. A higher education level can also relate to a higher awareness of health, independence, and quality of life. Other surveys showed that the percentage of the NG who have experience with computers and internet is 4 to 5 times that of the CG. The prevalence of mobile phones (121.4%) and household broadband internet connection (77.1%) in Taiwan further lowers the technological barrier for the NG. **Results & Discussion** Based on this understanding of the 'future customers', gerontechnology research in Yuan Ze University in Taiwan aims to build an intuitive and multimodal environment to enhance interaction and interpersonal communication between the older adults and their family. In addition to text, live audio and video, formats of interaction and communication include physical motion, visual images, music, etc. These various indicators shed light on not just healthcare, but also on how to enrich the content of interaction and communication by knowing what the older adults do or feel. Design concepts and prototypes based on the thinking of 'Connecting Homes' are presented.

References

1. Executive Yuan, Taiwan. Social Indicators; 2010; www.stat.gov.tw; retrieved March 9, 2012
2. Ministry of Interior, Taiwan. Statistical Yearbook of Interior; 2010; www.moi.gov.tw/stat/; retrieved March 9, 2012

Keywords: communication and governance, aging boom, family, technology acceptance

Affiliation: Yuan Ze University, Jhongli City, Taiwan; *E:* mehsu@saturn.yzu.edu.tw

Full Paper: No

C.K. LIM, C. GEISER. *Inspiration from the Chinese culture in gerontechnology*. *Gerontechnology* 2012;11(2):120-121; doi:10.4017/gt.2012.11.02.548.00 **Purpose** Chinese culture has influenced Taiwanese society, encouraging extended families where generations live together to become the predominant form of family structure. This kind of traditional family living pattern helps create an environment that is stable and full of love where senior citizens can securely spend the rest of their lives. 'Filial piety' is the most prominent feature of Chinese culture. Regardless of how the family structure is changing, today's Taiwanese society is still deeply affected by it. In

by it. In this study, we propose a new way of living for this social structure, which takes the virtues of 'filiations' into consideration. Currently, the research on the problems of aging societies and the development of technological products for the welfare of senior citizens emphasises the senior citizens themselves, but the interactive relationships between senior citizens and their family members are rarely regarded as an issue worthy of exploration. By starting with change in the family structure due to the aforementioned aging society, we hope to explore the heritage of 'filial piety' that is such an integral part of Chinese culture. We believe that the interaction between children and parents can be improved with technological assistance that is intuitive and practical, creating an interactive and communicative environment more naturally adaptable to aging. This should allow senior citizens to remain both physically and mentally able to achieve the goal of 'successful aging'. In fact, Chinese culture has been an inspiration to the field of design. For instance, the faucet brand, JUSTIME, designed by JU Ming, is inspired by Tai Chi. He simplifies Tai Chi movements and integrates them into the faucet design. These design examples will implicitly contain implications of Chinese culture. **Method** We propose a communicative pattern based on 'filial piety' that is more intuitive and interactive and we propose criteria for innovative technology to benefit senior citizens and their family members. The inspiration for the design projects comes from well-known poems and classical Chinese literature regarding filial piety: (i) a loving mother sews every stitch herself when she makes her wandering son's garments; (ii) make the hearts of parents glad, without violating their wishes; make sound and sights pleasant to their ears and eyes, and make their living places comfortable. Sensory stimulation is utilized to include sight, sound, touch etc. into the design elements. By taking five classical music notes of Chinese culture as a basis, they are combined into the leisure activities of local culture, which are floral plantation and Tai Chi (*Figure 2*). Design Project 1 is an interactive flowerpot design. It utilizes Kinect-technology to convert the elderly's hand gestures while they are planting into different melodies. The melodies reflect mood, the weather, or plant conditions, providing the listener with a pleasant experience. Concurrently, the melodies can be relayed to their children's phone, emailed or shared via the internet. Children can also monitor their parents' mood or health condition. Design Project 2 is an interactive wall design. Both the parents and their children need to install the interactive wall devices. It utilizes Kinect-technology to capture the body movements of the users as they face the wall and practice Tai Chi exercises. These input data are then converted into different melodies. At the same time, relatives and friends can interact and mirror the Tai Chi movements via a corresponding wall.

Results & Discussion In this research, we present two design projects that can enable senior citizens to better interact and share with their family members. It is hoped that concepts regarding filial piety in the Chinese culture can be directed to designing products for senior citizens.

Keywords: filial piety, intuitive, family, product design

Affiliation: Yuan Ze University, Taoyuan, Taiwan; *E:* kheng@saturn.yzu.edu.tw

Full paper: No

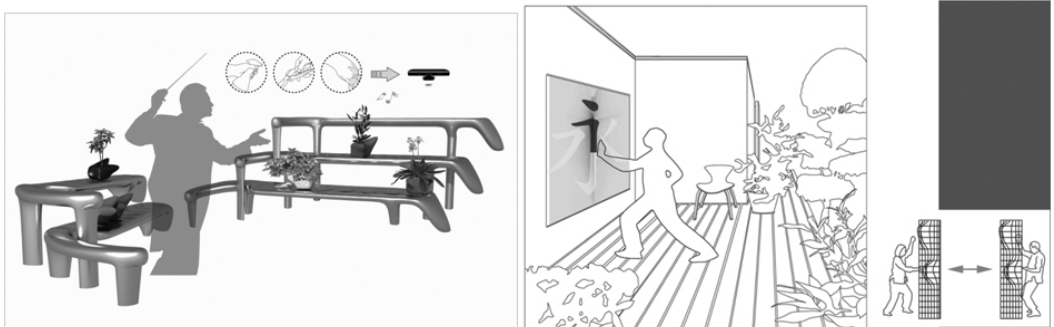


Figure 2. Interactive plant's melody design (left) & interactive Tai Chi wall design (right)