

The Scheme and Application of World Wide Web on Senior Citizens' Welfare in Taiwan

MEI-HUANG HUANG
Department of Nursing
Meiho Institute of Technology
No.23, Pingguang Rd., Neipu Shiang, Pingtung County 912
TAIWAN
tyan.huang@msa.hinet.net

SHI-JER LOU
Institute of Technological and Vocational Education
National Pingtung University of Science and Technology
No.1, Shuehfu Rd., Neipu, Pingtung, 91201
TAIWAN
lou@mail.npust.edu.tw

WEI-CHEN LIN
Gao Tai Junior High School
No.38 Lane 1, Dalian Rd, Pingtung City, 900
TAIWAN
navicula@ms17.hinet.net

Abstract- Taiwan has become an aging society. According to the demographic statistics of Ministry of Interior, the number of senior citizens in Taiwan area had accounted for 9.87% of the total population until July. 2006. The proportion of senior citizens would achieve from 10% in 2006 to 20.6% in 2026 and to 37% in 2051. That is, the speed of population aging process in Taiwan would be faster than most of countries in the world. The related problems of medical care, social welfare, spiritual life, and economic safety, etc., would be the important issues in the 21st- century Taiwan. Therefore, to implement welfare services for senior citizens, any related requirement, facilities, and regulations ought to be planed and responded thoroughly. With the quick development of Internet communication, the popularity of broadband network, and the maturity of remote monitoring technology, one of the essentials is to set up "World Wide Web (WWW) for Senior Citizens'. And this study is to explore how to apply WWW to construct a website special for senior citizens' welfare services in Taiwan. Moreover, goals of construction, objects of service, principle of design, content of web page, relevant measures, and future prospect are explored respectively. Hopefully, The WWW is not only a provider of information, but also a guardian for senior citizens' welfare.

Key words: Senior Citizen, Welfare, World Wide Web, Taiwan

1. Introduction

The proportion of senior citizens population, who are over 65 years old, achieved 7% in Sep. 1993. That represented Taiwan has become an aging society. According to the demographic statistics of Ministry of Interior, the number of senior citizens in Taiwan area had accounted for 9.87% of the total population until July. 2006 [1]. The Manpower Planning Department of Council for Economic Planning and Development, Executive Yuan, announced on June 22, 2006, that the proportion of senior citizens would

achieve from 10% in 2006 to 20.6% in 2026, and to 37% in 2051. Among it, the number of senior citizens who are over 75 years old would increase from 0.95 million in 2006 to 1.26 million in 2016, and to 3.69 million in 2051. The share of senior citizens who are over 65 years old would increase from 42% in 2006 to 54% in 2051. That is to say, the speed of population aging process in Taiwan would be faster than that in Japan and western countries, such as France, Sweden, Italy, England, Germany, and America. The proportion of senior citizens

population increasing from 10% to 20% in Taiwan would only take 20 years. And it would take Taiwan about 25 years to transform from an aging society to an aged one [2]. By virtue of the quick development and progress of medical science, sanitation, science and technology, and society, the number of senior citizens soared, which accentuated the importance and urgency of the population-aging problem. The related problems of medical care, social welfare, spiritual life, and economic safety, etc., would be the important issues in the 21st- century Taiwan [3]. Therefore, to implement welfare services for senior citizens, any related requirement, facilities, and regulations ought to be planned and responded thoroughly.

The Senior Citizens' Welfare Act was decreed in Taiwan in 1990. In consideration of senior citizens' needs on medical care, financial security, nursing, our government took many measures to reinforce welfare services for them. To implement the long-term nursing policy of "Aging in Place", "Strengthening elderly to provide Care Service Act" was ratified in 1998 to be executed for six years [4], with a purpose of ensuring financial situation, maintaining physical and mental health, promoting life quality, enhancing manpower and facilities, and fulfilling nursing services for senior citizens [5][6]. One of the essentials was to build "Network for Senior Citizens' Protection", which consisted of installing emergency reporting sites and constructing a thorough reporting system; strengthening the emergency medical system and constructing the network for solitary senior citizens' security; implementing one-stop services and carrying out nursing programs and welfare services for senior citizens; and building the Internet for senior citizens' welfare services. This study was to discuss the present situation of building the Internet for senior citizens' welfare services.

Nowadays, websites on senior citizens' welfare in Taiwan can be divided into several kinds. Some websites are provided by Department of Social Affairs, Ministry of Interior, or departments of social welfare of local governments. The contents include welfare policies, regulations, events, news, nursing regulations and institutions, and so on. The goals of these websites are to propagate government decrees, provide information, search engine, and links to related websites. Some websites, such as "Forever Healthy" and "Doctors" are constructed by non-governmental organizations. These websites mainly provide senior citizens with information about disease prevention and therapy, diet nutrition, and health care. Some websites, such as "Senior Citizens Service Center of Taichung County", provide

information on recreational facilities, equipment, services, and activities. Some websites, like "Evergreen Institute of Kaohsiung City" and "University for the senior citizens", focus mainly on senior education. They provide information on activities and courses about recreation, learning, socials, and services. Some websites, such as "National Long-term Care" and "Senior Citizen Home", provide information on nursing institutions, services, facilities, and the environment. Still, a few websites, like Lifeline, mention few issues on senior citizens' psychological conditions and counseling for them. Viewing websites of senior citizens' welfare in Taiwan, the faults are listed as follows:

- (1). The websites present information mainly in words, not pictures or flash. The frame is seldom designed for senior citizens, either.
- (2). Most websites provide static materials for people to read. The lack of interaction provides few choices for users.
- (3). Most websites lack interest and added values, which can't attract senior citizens to browse them.
- (4). Information about senior citizens' welfare service scatters among various websites. The lack of integration and links make the information unavailable to users.
- (5). Government-related websites focus on propagating decrees. A lot of services can't be applied on-line through one-stop service.
- (6). Non-governmental websites provide information mainly about medical care and nursing. There are few websites focusing on education, psychological counseling, recreation, and career planning for senior citizens.

Based on the above faults or requirements, this study is to explore how to use World Wide Web to construct a website special for senior citizens' welfare services in Taiwan. Moreover, goals of construction, objects of service, principles of design, content of web page, relevant measures, and future prospect are also explored respectively as follows.

2. Goals of Construction

The construction goal of Senior Citizens' Welfare Website is to provide welfare services and related information needed for elderly people in Taiwan. The content contains all the information on laws and regulations, health care, education, recreation, psychology, social adjustment, career planning, and nursing care about senior citizens. It is easy to browse, surf, link and interact with the website—a

website full of interest, educational value, and providing adequate services.

3. Objects of Service

The primary objects of service are all senior citizens in Taiwan, as well as people at different ages, especially family dependants and descendants of senior citizens. According to the demographic statistics of Internet users in the United States in 2000, the prevalence rate of Internet use in the U.S. reached almost 50%. The average age of Internet users was 33 years old, and most of them were highly-educated and highly-paid elites. The prevalence rate of Internet use in Taiwan achieved about 61% in 2004, and most of users are between 20 and 35 years old. According to this, nowadays the proportion of senior citizens who have the ability and the habit to surf the Internet is still small. Owing to that more than 60% of senior citizens in Taiwan live with their children, they can surf the Internet with their children's assistance. In addition, from elderly education and social cooperation, the government can improve elderly people's ability to surf the Internet so that the so-called "Digital Divide" problem can be mitigated.

4. Principles of Design

The Internet has been developed since 1993, and within a few years it has become the primary medium around the world. It has also become the index of information competitiveness around the world. The Internet communication environment consists of World Wide Web, FTP, E-Mail, E-News, MSN, MUDDS, Net-Meeting, E-Phone, and so on. Among these, WWW, an information system implemented on the Internet, contains the features of distribution, hypermedia, cross-platform, and interaction. Its designing purpose is to support the group collaboration in different areas and to construct a shared database [7]. WWW conveys information by means of words, sounds, images, pictures, flash, and video, and therefore, it can retrieve, organize, connect, create, and present information effectively. Consequently, to meet elderly people's needs, the designing principles of constructing the WWW of Senior Citizens Welfare can be explained from designing of web page, modes of surfing, collection of data, modes of interaction, users' response, and added value [8] [9] [10].

4.1 Designing of Web Page

- (1). The designing of frame should focus on senior citizens' usage.

- (2). Each web page should be designed for browsing at a time. Vertical and horizontal scrolls should be avoided.
- (3). The application of colors should be distinctive and significant.
- (4). The frame should be readable. Be careful of the brightness difference of typeface, picture colors, and background colors.
- (5). The type size should be appropriate for senior citizens. Proper use of pictures and flash is good for beautification, introduction, and information-offering of the website. Pictures should not be too large in size and in amount, or they will cost much time to be downloaded.

4.2 Modes of Surfing

- (1). Appropriate uses of frames. Navigation bars on each web page.
- (2). Significant pictures can be used as navigation of the website.
- (3). Multilevel index makes the content clear to browse.
- (4). Make the best use of search engine for information.
- (5). "Quick Help" contributes to the navigation.

4.3 Collection of Data

- (1). The content should be precise, and the category and quantity should be abundant and properly classified.
- (2). The information and data update anytime.
- (3). The web page should contain hyperlink to other related pages and websites.

4.4 Modes of Interaction

- (1). With on-line application, e-mail, BBS, users' message board, and net-meeting, users can communicate by words, speech, or images.
- (2). The function of file download and upload is necessary.

4.5 Users' Response

- (1). E-mail box is necessary for opinions and suggestions.
- (2). On-line questionnaire can be practiced to get users' situations and interests.

4.6 Added Value

In addition to providing information and convenience, the website should be interesting and relaxing. It would be more attractive if coupons for senior citizens are offered on-line.

5. Content of Web Page

The content of Senior Citizens' Welfare Website should contain as much as possible the following items: policy and regulations, medical care, economic planning, housing care, education, leisure activities, caring, career planning, shopping programs, and hotlines for senior citizens [6][11][12][13].

5.1 Policy and Regulations for Senior Citizens:

- (1). Provide central and local governments with policy target, regulations, programs, statistics, and future development. Also, the government can publicize decrees, and praise exploits. People can supervise the government and express their opinions, as well.
- (2). Provide links to sponsoring departments of welfare services, and information of related business.
- (3). Provide on-line search, application, and opinion expression.

5.2 Medical Care for Senior Citizens:

- (1). Provide information on diet nutrition, health care, and medical knowledge.
- (2). Provide welfare policies on health insurance, medicare subsidy, free checkup, mobile medical services. These services can be applied and searched on-line.
- (3). Provide information on medical institutions and links.

5.3 Economic Planning of Senior Citizens:

- (1). Provide information and on-line application for subsidy, tax exemption, and pension.
- (2). Provide information and resources on employment services and vocational guidance.
- (3). Provide notions and suggestions on financial planning.

5.4 Housing Care for Senior Citizens:

- (1). Provide information and on-line application for long-term care facilities (such as Nursing Homes, day care, and home care), nursing facilities, and service institutes (such as in-home services and respite care).
- (2). Provide information and on-line application for home care, residential maintenance, free lunch for senior citizens, and meal delivery.
- (3). Provide information and on-line application for nursing institutions.

5.5 Education for Senior Citizens:

- (1). Provide web-based courses to meet senior citizens' interests, abilities, and needs. Courses can be divided into arts, language, health care, computers, and interpersonal relationship. The courses can be presented by web pages, voice caption, net-meeting, and on-line discussion, etc.
- (2). Construct forums on different topics so that senior citizens can express their opinions, discuss and learn together.
- (3). Provide links and application to elderly colleges and arts groups.

5.6 Leisure Activities for Senior Citizens:

- (1). Construct web-based audio-visual centers. Music and movies suitable for senior citizens can be displayed on-line or be downloaded.
- (2). Construct on-line karaoke music as a relaxation for senior citizens.
- (3). Provide mild, interesting, and intellectual on-line games for recreation and intelligence.
- (4). Construct chatrooms for senior citizens to communicate on-line. It can be viewed as both relaxation and social activity.
- (5). Provide information on facilities and activities of other clubs, activity centers, and sports groups. Also encourage senior citizens to join.
- (6). Introduce activities of special discount or priority services, and encourage senior citizens to participate.

5.7 Caring for Senior Citizens:

- (1). Offer issues on mental health, social adjustment, and family ethics for senior citizens, and also provide professional counseling.
- (2). Construct on-line caring or counseling center. Senior citizens can express their emotions or questions and get relief and answers, by means of e-mail and BBS.
- (3). Provide related information and link to caring groups.
- (4). Celebrate festivals and send warming e-card to senior citizens.
- (5). Hold "Reverence for elders' activity" on the Internet, and encourage people to join.
- (6). Construct on-line art gallery, exhibiting pictures or articles of senior citizens, so that they can feel self-accomplishment and respect.

5.8 Career Planning for Senior Citizens:

- (1). Provide ideas and suggestions on career planning.
- (2). Provide good notions and methods on financing.

- (3). Provide good notions and methods on friends-making.
- (4). Provide good notions and methods on family.
- (5). Provide good notions and methods on facing death.
- (6). Provide related consultation websites.

5.9 Shopping Programs for Senior Citizens:

- (1). Construct e-shop. Senior citizens can do shopping on-line quickly, conveniently, and cheaply. Delivery service is also offered.
- (2). Provide information of discount or priority services, especially for senior citizens who surf the Internet frequently.
- (3). Provide links to other e-shop.

5.10 Hotline for Senior Citizens:

- (1). Provide e-mail, BBS, hotlines, or fax for opinion expression and communication.
- (2). On-line questionnaire can be practiced to get users' situations and interests.

5.11 Telemedicine for Senior Citizens:

Telemedicine for senior citizens can be practiced in virtue of telecommunication. The content contains teleradiology (X-ray, computerized tomography, and nuclear medicine); telediagnosis (endoscopy, pathological section, and ultrasound imaging); teleconsultation (psychiatry, cardiology, emergency treatment, and operation); teletherapy (gastroscopy, vocal nodule excision); and telemedical information (literature search, gene library, and image bank), and so on.

5.12 Tele-health Care for Senior Citizens:

Tele-health care for senior citizens can be implemented by connecting home tele-care system, Internet, and related devices. Senior citizens can do daily physical inspection and send the result to the home care management system, with the devices of oximeter, electrocardiograph, peak expiratory flow meter, blood pressure gauge, and ear thermometer. Then, the medical staff on the hospital part would analyze the results and provide consultation for senior citizens. The combination of home environment and medical resources promotes the quality of health care, and facilitates the development of community long-term care system.

5.13 Remote Monitoring for Senior Citizens:

Home health monitoring is performed with advanced technology and equipment to share the high-cost medical staff and resources. Remote monitoring technology (such as video conferencing, blood

pressure, and smart medicine-taking system) is performed to monitor senior citizens' life condition and physical signals, and to do emergency rescue reporting in case. This monitoring system actively performs the long-term observation of senior citizens' home activities and behavior, such as sleep mode and quality, excretion mode and weight, mobility, times of switching, and used amount of water and electricity. Therefore, diseases and signs of physiological deterioration can be detected and treated early and effectively.

5.14 Smart Home for Senior Citizens:

Smart home is designed to implement total monitoring and control of home environment, including that of temperature, noise, lighting, window opening/closing, gas, water, electricity, and the expiration date of food in the refrigerator. As a management of home appliances, the server transmits information to the remote database. After extensive diagnosis, it can present the result on the screen. Therefore, distant family members can know and control the situation at home [14].

5.15 Distance learning system

Distance learning system is designed for senior citizens and physically disabled people. With the assistance of sound, material, video tapes, multimedia, wireless transmission, and free search, learners can overcome the limitation of space and obtain material on the Internet with their eyes and hands. With the benefits of broadband network system and the flexibility of time and space, home learning makes more opportunities for further education.

6. Relevant Programs

The main objects of service in this Welfare Website are senior citizens in Taiwan who are able to surf the Internet, often do it, and have complete computer facilities. However, the actual proportion is small. To make the best use of the website and to benefit people, appropriate relevant programs are needed to teach and encourage senior citizens to surf the Internet. The relevant programs are listed as follows:

- Keyboards, mice, and Chinese input tools for senior citizens.
- Chinese input methods, Internet software, and web browsers for senior citizens.
- Learning materials on computers and Internet for senior citizens.
- Develop teaching strategies, learning methods, teaching media, and assessment tools on

computer and Internet teaching for senior citizens.

- Develop and improve social workers' knowledge and skills on computers and Internet.
- Subsidize senior citizens' recreation centers and community centers computers and Internet facilities.
- Promote courses about the Internet through Open University, Learning centers for the County (City) people, Learning centers for the labors, Evergreen Institute, University for the senior citizens, and encourage senior citizens to take.
- Subsidize senior citizens with inferior economic situation and their family computers and Internet facilities.
- Volunteers assist senior citizens with computers and the Internet in senior citizens' centers, community centers, and non-governmental service organizations.
- Encourage nursing centers and day care centers to install computers and Internet facilities; and teach senior citizens to use them.
- Encourage governmental and non-governmental institutions to offer courses about the Internet. Staff is required to receive in-service education to promote the computer capability of middle-aged and senior citizens.
- Content of website should be abundant and update anytime. Favored services are offered to encourage senior citizens to surf the Internet.
- Broadband network is necessary for efficiency of surfing the Internet.
- Central and local executive departments of senior citizens' welfare should cooperate with each other and with the Website. Therefore, with the assistance of the Internet, services for senior citizens would be no stop.

7. Prospects

Nowadays, the emphasis of Senior Citizens' Welfare Website is to provide convenient and efficient services for senior citizens - offering related information for them to browse, search, and apply. Besides, leisure, recreation, medical care, and education for senior citizens should also be taken into consideration, so that senior citizens can be well attended physically and mentally. Therefore, the first task in the future is to construct and start the website as soon as possible. Second, with the quick development of Internet communication, the popularity of broadband network, and the maturity of remote monitoring technology, the Internet can be applied for emergency reporting system, security network, nursing care, medical services, physical and

mental counseling for senior citizens. The WWW is not only a provider of information, but also a guardian for senior citizens.

8. Conclusions

As the senior population increases sharply in Taiwan, the matter of welfare services for senior services receives special attentions. It takes government departments and social institutions' mutual cooperation on policy, medical care, financial assistance, housing care, education, and leisure activities for senior citizens. A system of innovative, total-care, and high quality welfare services is in urgent need. Therefore, WWW of Senior Citizens' Welfare is supposed to accomplish its functions well, according to its abundance of content, variety of material, ease of interaction, popularity of Internet, and potential of development. Hopefully, this study can arouse people's awareness that senior citizens' welfare deserves improvement.

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