USING WEB USABILITY TO SUPPORT SENIOR'S INTERNET LEARNING

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ABSTRACT

Usability plays an important role in helping senior citizens use and learn the Internet. This study has two purposes: (1) To review the literature regarding use usability in Internet usage among the elderly, (2) To describe the findings of an experimental study, which we did by developing and implementing a study support system based on usability in an Internet literacy course for senior learners.

1. INTRODUCTION

Two prominent trends are co-occurring in our society: the aging of our population and an increased societal reliance on Internet. However, currently many elderly persons do not have the knowledge to utilize Internet to their full potential. Therefore it is necessary to use technical and social support method to improve elder persons' Internet literacy. One of the important factors is usability, which means a quality attribute that assesses how easy user interfaces are to use. In the study, we review the literature regarding use usability in Internet use among the elderly. Then we introduce an experiment study we did in an Internet literacy course for senior learners by developing a study support system based on usability.

2. LITERATURE STUDY

Usability was made to be an ISO standard in 1998. It describes the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. With the development of Internet, the web usability is used frequently. As its name means, it is working to make the Internet more usable for everybody. Recently the studies of using web usability for senior citizens and disabilities become popular.

2.1 Interface design guidelines

Seniors are one of the fastest growing demographics on the Web, but the current websites are twice as hard for seniors to use as they are for younger users. In relation to the attributes of the aging process, "eyesight," "precision of movement," and "memory and understanding" typically deteriorate. If we don't consider these attributes when designing interface guidelines for seniors, they will not use the Internet. Coyne P. K. and Nielsen J published a series of design guidelines based on their usability studies with people age 65 and older in 2003. The guidelines aim to help web and other product designers better understand how seniors use the web, how design elements can enhance or impede their usability, and how to create designs that are easy for everyone to use. Moreover, many websites based on usability design have been developed to make the websites easier to use for seniors in the areas of e-government, health care service, and senior community and so on.

2. Internet related tool

Another factor that will be a barrier for seniors to use Internet is Internet tools. The most popular used tool is browser. Since the browser is present on every page accessed, this means even relatively minor flaws can be exaggerated into serious usability problems by the frequency with which they are encountered. Therefore, many new browser tools are being developed and designed for senior citizens and those who have difficulty operating conventional web browsers. Also, e-mail are frequently used by seniors recently, therefore studies concerning simple and easy to use e-mail soft for seniors have been conducted.

3. Internet literacy

Internet literacy education for senior citizens is becoming more important in social and public education organizations in the world, and there are many organization's web sites which provide a lot of learning content with text, movie, and flash format. The learning materials based on web usability concept are appeared.

3. A STUDY SUPPORT SYSTEM BASED ON USABILITY

3.1 Purposes

Although the usability are playing an important role in interface design guidelines, Internet related tool and Internet literacy, but few studies have ever tried to provide an integrated solutions to help seniors improve their Internet literacy then enrich their life in the Internet age. In the study, we did an experiment study in an Internet literacy course for senior learners by developing a study support system based on usability. We all know that education for social learners is different from other educational models, as Knowles (1980) indicated that they are voluntary members who participate not through obligation but under their own initiative, moreover the learning interest and process are important to them. As well as they are older people, whose health is not as good as other generations' learner. Therefore, in the study we emphasis two points: to increase and keep their learning interest in studying Internet knowledge; and to decrease barriers in using computer and Internet concerning their health condition.

3.2 System structure

Senior learners have special needs different from other generations. They need low paced, low intensity training and often prefer self-paced learning, also they want clear and explicit instructions designed to accommodate age-affected sight, hearing and mental agility. In corresponding to those factors, we proposed a study support system and implement it in the course because it can use to help self-paced study. Also, the course was Internet literacy course, so it not only can easily promote learners to use the system, but also give learners more practical chance, even provide a relax learning environment. According to a survey result we did before the course, we designed the system which comprises two parts, which are explained as follows:

(1) Browser tool for seniors:
We designed a new browser tool for seniors considering the attribute of "eyesight" and "precision of movement," to make it easier for seniors to browse the Internet.

(2) Web-based Learning Site for beginners:
We offer two learning styles: Textbook style and FAQ style. (a)Textbook: We aim to provide senior citizens with an easy way to understand and access learning materials. Also, to improve access, an online learning material is necessary. To minimize the level of ability and reliability anxiety, the online material focus on Internet foundation knowledge, popular Internet terms, search ability, security, and anti-virus knowledge. We focus on the understandability of content in order to let seniors, whose memory and comprehension often fades with time, easily grasp the knowledge. (b) FAQ: The survey results showed that it is difficulty to get solutions when senior citizens met problems. So it is necessary to offer an effective and easy-to-access style to help learner resolve the problems and improve their

Internet literacy ability. Moreover we think the FAQ style will be an effective learning style because it can let them think the answers actively as well as an interesting style because it can let them taste the pleasure if their reply is consistent to the answer.

Senior citizens can easily access the "web-based learning site for beginners" through "browser tool for senior citizens" in which the homepage is set to the site. For other learners who are novices at Internet, they can use normal browser tools to visit the web site freely. (Figure1)
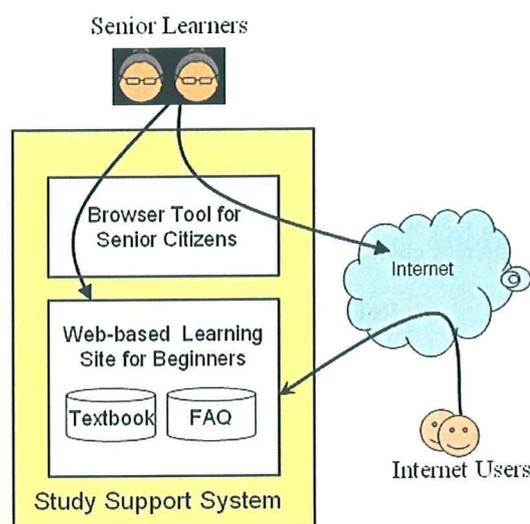

Figure 1 the image of study support system

3.3 Evaluation

We developed and implemented the system in an Internet literacy course and got a satisfied evaluation through questionnaire [1].

4. CONCLUSIONS

We proved that the usability can do an important role in improving senior's Internet literacy. Further studies could be done with enhancing the study support system's functions and enriching learning contents to help more senior citizens learn and use Internet.

[1] Wei ZHOU, Takami YASUDA and Shigeki YOKOI: "Internet for Senior Citizens in China: Survey and Proposal", the 14th International Conference on Computers in Education (ICCE2006), Beijing, China, November 30-December 4 (2006)