Mohd Ayub A. F. et al. (Eds.) (2011). Workshop Proceedings of the 19th International Conference on Computers in Education. ChiangMai, Thailand: Asia-Pacific Society for Computers in Education.

What make seniors feel more confident in learning Internet and computers? A case study

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Abstract: The purpose of this study was to investigate each aspect of the influential factors of seniors' confidence increase when learning Internet and computers. Factors included, seniors' motivation, obstacles solved due to support, and their coping strategies for obstacles when learning Internet and computers. A course was designed to support beginning-level seniors to learn knowledge and skills regarding usage of Internet and computers with teachers' and assistants' guidance. Content analysis was used to investigate each aspect of influential factors of confidence increase from the interview data. A sample of 30 middle and aged students was volunteered in this study. It is found that providing a course with content knowledge and skills that are interesting, enjoyable, useful, and sharable to seniors is important for motivating seniors, which in turns could increase their confidence. The findings also pinpointed the crucial role of assistants around students as most of them said that their increase of confidence was due to obstacles solved with the aid. In addition, asking for help was reported as one dominant coping strategy, which was used by seniors that can make them feel more confident.

Keywords: Internet and computers learning, Confidence increase, motivation, obstacles, coping strategies.

Introduction

Because of the rapid development of the Internet and communication technologies, the European committee raised a report, *Making a European Area of Lifelong Learning a Reality*, to enhance seniors' digital learning literacy [7]. Hence, seniors' abilities of operating computers and Internet to learn, communicate, and search for information are deemed as critical for life-long learners.

Most researchers have been interested in the investigation of computer self-efficacy and Internet self-efficacy [6, 13, 15]. According to Bandura [1], self-efficacy refers to a person's ability to self-assess one's capabilities of successfully performing specific tasks. Computer self-efficacy refers to the confidence one person has regarding his/her capabilities to perform various tasks using computers [5]. With the rapid growth of Internet, Internet self-efficacy has become a focus in the research field that probe a person's belief and confidence in one's Internet usage and whether he/she can successfully accomplish specific Internet tasks [14]. Actually, confidence and self-efficacy are highly related and intertwined. For instance, individual who has high computer self-efficacy would show higher confidence in specific tasks that he/she has to accomplish [5]. Studies also have been explored on related factors to confidence or self-efficacy. For instance, it is found that "confidence in one's abilities generally enhances motivation, making it a valuable asset for individuals with imperfect willpower [2]." In addition, low confidence is found to be one of many factors that inhibit students continuing learning [9]. Besides, providing computer aids to learners will improve their ability and in turn result in higher self-efficacy [5]. Even though many

studies have been explored on confidence and self-efficacy, there is still limited research aimed to explore influential factors that make learners feel more confident with a more in-depth analysis. Therefore, the objectives of this study were to:

1. Design a training course with teachers' and assistants' guidance and support.
2. Use content analysis to investigate each aspect of the influential factors of seniors' confidence increase from the interview data. Categorized factors included, seniors' motivation, obstacles solved due to support, and coping strategies for obstacles when learning Internet and computers.
3. Investigate and compare results of pretest and posttest of seniors' self-efficacy toward Internet and computers utilizing two questionnaires.

Methodology

1. Participants

A sample of 30 middle and aged students (6 males and 24 females) with an average age being 58 was volunteered in this study. They were a group of students participated in a Buddhist organization in New Taipei city in Taiwan. According to their educational background, these students graduated with a high school degree in average.

2. Course introduction, Procedure, and Data analysis

The course design in this study was a series of instructional activities specifically designed based upon findings in the literature [4] as well as the interview data for beginning-level seniors to learn how to use Internet and computers. In addition, the ratio of assistants to students was 1:3. The course was given in three sessions during an eight week period (four hour per week). Participants met at the computer training lab of the Buddhist organization and each was assigned to a personal laptop. The course was divided into three major content areas: computer basic operations (typing and organizing files), communication applications (i.e. emails and msn), and searching skills (information, music and pictures).

Interviews were conducted on the third week, the sixth week, and the eighth week. Major interview questions included, 1) Why would you like to join this course? 2) What obstacles did you confront in learning computers and Internet? 3) Do you feel more or less confidence so far and why? Each of the interview session lasted within 30 minutes.

Content analysis was used to analyze students' responses to the interview questions. Those whose responses to the corresponding question were vague and/or uncompleted would be dropped out. The coders read all of the responses first, coded important keywords, and discussed and reached consensus in categories and criteria. Their inter-coder agreements for these analyses were assessed and reported as greater than 0.80.

3. Instrument

The measures were administered at both the beginning and end of the course. The time between pretest and posttest ranged from 8 to 9 weeks. The computers self-efficacy (CSE) questionnaire, which was developed and modified by Murphy et al. [11], was implemented with a bipolar statement in a six-point Likert mode, ranging from "strongly confident" to "strongly unconfident." Our study used 12 of the original 32-item instrument developed by Murphy et al. [11]. The loadings for the scales were ranged from 0.52 to 0.91, and the overall alpha was 0.96. A sample item of the basic ISS is "I feel confident of downloading pictures and films from the Website."

The Internet self-efficacy (ISE) questionnaire was mainly modified from Liang and Wu's [8] Internet self-efficacy scale (ISS) and added new items suitable for seniors. Therefore, in this study, the questionnaire has 22 items with a 6-point Likert scale ranging from 6 (very confident) to 1 (very unconfident). This ISS included two scales: basic Internet self-efficacy and advanced Internet self-efficacy. The alpha reliability coefficients for these two scales were 0.95 and 0.94, and the total alpha of this sample was 0.95 from Liang and Wu's [8] study. A sample item of the advanced ISS is "I feel confident of writing e-mail."

Results and Discussions

1. Influential factors of confidence increase when learning computers and Internet

Those 30 percent of seniors who considered motivation as an important factor that influences their confidence increase mentioned enjoyment, interest in learning, and sharing. For instance, student #s17 said, "*When other people ask me to help, I will be happy since I know it and I am available to help.*" As for obstacles solved due to support, 33 percent of male and 42 percent of female mentioned that there is sufficient support such as a number of assistants in the course. For instance, student #s01 said, "*You teacher and assistants spent a lot of time and energy to teach us. It's pretty nice that you have patience.*" Only 10 percent of students mentioned coping strategies, such as inner-directed exploration and asking for help as their reasons of confidence increase. For instance, student #s10 said, "*I explored on my own when the teacher is teaching a topic*."

Table 1. Frequency and percentage of influential factors of confidence increase

	Motivation	Obstacles solved due to support	Using coping strategies
male	0 (0%)	2 (33%)	0 (0%)
female	9 (38%)	10 (42%)	3 (13%)
total	9 (30%)	12 (40%)	3 (10%)

Note: n=30, (male=6; female=24)

2. Motivation toward learning computers and Internet

To investigate their motivation, the interview data were examined and compared with findings in the literature [3] and finally coded into two dimensions, which are, deficiency-oriented motivation (motives from the outside environment) and growth-oriented motivation (motives from inner-self or personal desire). There were 23 percent of students mentioning that they were motivated to catch up the trend in learning computers and Internet. For instance, student #s02 said, "*Using computers is a trend. When everybody knows it, you cannot leave yourself behind.*" There were both 17 percent of students mentioning encouragement by others and usefulness recognition as their motivation to learn. For example, student #s04 indicated, "*We were encouraged by masters in this organization to learn.*" Student #s18 mentioned, "*There are many things you have to use computers to handle with, such as searching information online, etc.*"

Table 2. Frequency and percentage of motivation toward learning computers and Internet

	Deficiency-oriented				Growth-oriented	
	Encouraged by others	Catch up the trend	Seize the opportunity	Afraid to be mocked	Recognize usefulness	Desire to learn more
male	1 (17%)	0 (0%)	0 (0%)	0 (0%)	1 (17%)	1 (17%)
female	4 (17%)	7 (29%)	2 (8%)	1 (4%)	4 (17%)	0 (0%)
total	5 (17%)	7 (23%)	2 (7%)	1 (3%)	5 (17%)	1 (3%)

Note: n=30, (male=6; female=24)

3. Obstacles of learning computers and Internet

The study categorized two main aspects of obstacles faced by seniors based on interview data, which are, personal factors and contextual factors. It is found that 20 percent of seniors in this study needed to face some personal obstacles such as physical barriers. Very much similar to the previous findings [10, 12], most of seniors in this study mentioned bad memorization, slow typing, and eyes that are easily get tired. As for contextual factors, there were 17 percent of students mentioning insufficient resource, as well as instruction and assistance as obstacles they faced. For instance, student #s05 mentioned, "*We did buy computers at home, but those computers were took over by kids*." Even with the arrangement of the ratio of assistants and students as 3:1, there were 17 percent of students mentioned too many people resulted in their waiting for asking.

Table 3. Frequency and percentage of seniors' obstacles of learning computers and Internet

	Personal factors		Contextual factors	
	Physical barriers	Insufficient skills	Insufficient resource	Insufficient instruction & assistance
male	1 (17%)	1 (17%)	1 (17%)	1 (17%)
female	5 (21%)	0 (0%)	3 (13%)	4 (17%)
total	6 (20%)	1 (3%)	4 (13%)	5 (17%)

Note: n=30, (male=6; female=24)

4. Coping strategies for obstacles encountered in learning computers and Internet

Among 63 percent of students who chose to ask for help, there were 67 percent of female and 3 percent of male asked for help. Uniquely, two females among all students mentioned that they study on their own, which shows inner-directed coping strategies. For example, student #s15 said, "*Sometimes during short breaks, I will try to explore and practice by myself frequently.*"It is almost the same situation when it is out of the class.

Table 4. Frequency and percentage of seniors' coping strategies for obstacles

	In-class		Out of the class		
	Asking for help	Inner-directed	Libraries	Family	Other experts
male	3 (50%)	0 (0%)	0 (0%)	0 (0%)	2 (33%)
female	16 (67%)	2 (8%)	1 (4%)	5 (21%)	6 (25%)
total	19 (63%)	2 (7%)	1 (3%)	5 (17%)	8 (27%)

Note: n=30, (male=6; female=24)

5. Comparison among seniors' confidence increase, CSE, and ISE

After examining influential factors of confidence increase in-depth, this study further analyzed the trend of seniors' confidence change with time passing by. It is found that there were 30 percent of students described their confidence chance as low-middle-high with time change. Only 7 percent of students regarded their confidence change as decrease. This finding can be further supported by the findings as shown in Table 5. The t-test result showed that seniors perceived higher computer self-efficacy and Internet self-efficacy both on general and advanced aspects in the posttest when comparing with the pre-test.

Table 5. Pre-post comparison in seniors' responses to CSE and ISE

	Pre-test mean (S.D.)	Posttest mean (S.D)	*t*-test
CSE	3.12 (1.00)	4.35 (0.60)	-6.87**
ISE-General	3.82 (1.05)	4.42 (0.47)	-3.39**
ISE-Advanced	2.84 (1.25)	4.02 (0.58)	-5.72**

Note: *p<.05, **p<.01

Conclusions

This paper was intended to examine the influential factors of seniors' confidence increase and further query the aspects categorized from their reasons of confidence increase. It is found that most of the students who mentioned confidence increase mainly because of obstacles solved with the aid pinpointed the crucial role of assistants around them. In addition, students could be motivated when they were able to share with or help others. As a result, designing instructional strategies that provide enough assistants and opportunities for students to help each other is suggested. For instance, arranging students' sitting places based on the level of skills and knowledge may be an option for educators who have interests in teaching seniors about computers and Internet. Besides, with the encouragement of and support from outside resource, seniors seemed more likely to have confidence in learning. However, only a small proportion mentioned using coping strategies such as studying in libraries or trying and practicing on their own. It is also found that most of online learners don't know how to fight for available resource from outside [6]. As a result, teachers and assistants may encourage students to possess abilities in using active coping strategies to solve problems.

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