INFORMATION COMMUNICATION TECHNOLOGY SELF-EFFICACY AND CORRELATION OF ICT STRESS: A CASE STUDY OF FINAL YEAR UNDERGRADUATES IN TWO UNIVERSITIES IN SRI LANKA

C. N. K. Alahakoon

Main Library, University of Peradeniya

Introduction

Information communication technologies (ICT) are effecting revolutionary changes in the way information is stored, retrieved and disseminated. To handle these new technologies within the library, there should be certain ICT capabilities that have to be acquired by the undergraduates. The university libraries spend large amounts of money to acquire the relevant ICT equipment to provide effective and efficient services to users. Support has been provided in setting up the necessary networked infrastructure by providing the requisite hardware and software and further the IT training in the faculties. However, many studies have proved that, the ICT usage of the undergraduates in Arts/ Social Sciences and Humanities are poor when finding information. Some students are reluctant to use ICT systems as they consider it to be time consuming, unreliable and some users are frightening to advent to new technology. To improve the ICT usage, it is necessary to study self-efficacy level of ICT usage and their level of ICT stress among the undergraduates in the universities.

The self-efficacy is "the belief one has the capability to perform a specific task" (Bandura, 1997). The following research studies done by Compueau and Higgings, 1995; Compeau et al. 1999; Eastin and LaRose, 2000; Durndell and Haag, 2002; Thatcher and Perrewe, 2002 and Sam et al., 2005; tried to identify the computer self-efficacy and the anxiety or the level of the stress as these two factors are inter-dependent.

Materials and Methods

The design of this research study has been based on survey and questionnaire was used as a research instrument to collect data. According to the simple random sampling method 321 Special final Year undergraduates of Arts/ Social Sciences and Humanities from University of Peradeniya (212) and University of Ruhuna (109) were selected. An Information Communication Technology Self-efficacy (ICTSE) scale was prepared according to Bandura's self-efficacy theory which assess the Computer self-efficacy (CE), Online Public Access Catalogue Self-efficacy (OPAC) and the Internet Self-efficacy (INT). A hypothesis was developed and tested by using these two scales H1: The higher the individual's ICT self-efficacy, the lower his/her ICT stress.

Results and Discussion

The 25 items of ICT self-efficacy scale and 15 items of ICT stress scale was tested and the feedback was received from (n=100) undergraduates to refine the questionnaire; each item preceded with the phrase "I feel confident...".

Then the total item correlation in each constructs and the alpha value α for the items assessed to know the reliability of the items. For the final study, 22 ICT self-efficacy items and 15 stress scale items was used.

Table 1: Reliability analysis

Constructs	No. of items	Alpha
ICT Self-Efficacy (ICTSE)	22	.945
ICT Stress Scale (ICTSS)	15	.898

The items which have item-total correlations less than 0.50 were dropped from the scale. Table 1- scales of ICT Self-efficacy (ICTSE) and ICT Stress (ICTSS) show the number of selected items for the final questionnaire and their high reliability. For the ICTSE scale. item correlation and alpha (α= .520 - .775), Cronbach's alpha *if item deleted* is 0.945. For the ICTSS scale item correlation and alpha (α= .506 - .857), Cronbach's alpha *if item deleted* is 0.898.

Table 2.1: Group analysis of the t-test

University		N	Mean	Std. Deviation	Std. Error Mean
ICTSE	PDN	212	169.41	38.292	169.41
	RUH	109	142.79	42.004	4.023
ICTSS	PDN	212	58.07	29.992	2.060
	RUH	109	60.43	25.630	2.455

Table 2.1 indicated that the mean of these two scales. There is a mean difference between ICTSE scale in these two universities but no such differences in the ICTSS scale in the PDN and RUH universities. The level of the ICTSS is less than even the middle level (75) in both the universities.

Table 2.2: t-test for Difference to a Significant Level

Independent Sample Test					
	t-test for Equality of Means				
	t	df	Sig. (2-tailed)	Mean difference	Std. Error dif.
ICTSE - assumed ICTSE=(CE,OPAC,INT)	.705	319	.000	26.617	4.666
ICTSS - assumed	-.702	319	.483	-2.365	3.370

According to Table 2.2 the statistical test of significance level was indicated. The ability of the Information Communication Self-efficacy is significant and indicated as P-value
.000. The analysis regarding the ICT Stress Scale, it is not significant as indicated by .483 of 2-tailed analysis.

Table 3: Correlations Coefficients of each Subscales

Correlations

		CE	OPAC	INT	ICTSS
CE	Pearson Correlation	1	.782**	.790**	-.324**
	Sig. (2-tailed)		.000	.000	.000
	N	321	321	321	321
OPAC	Pearson Correlation	.782**	1	.719**	-.290**
	Sig. (2-tailed)	.000		.000	.000
	N	321	321	321	321
INT	Pearson Correlation	.790**	.719**	1	-.341**
	Sig. (2-tailed)	.000	.000		.000
	N	321	321	321	321
ICTSS	Pearson Correlation	-.324**	-.290**	-.341**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	321	321	321	321

**.Correlation is significant at the 0.01 level (2-tailed).

Correlations

****.Correlation is significant at the 0.01 level (2-tailed).**

Correlations Coefficients between subscales of the ICTSE such as CE, OPAC, INT and the scale of ICTSS are indicated in the table 3 of this study. The correlations between the three subscales of the ICTSE and ICTSS scale scores were highly significant at the P<0.01 level (2-tailed). According to the results depicted in the table 3, it is obvious that, a significant negative influence on ICT stress with all other subscales.

Conclusion

The findings of this study provide very significant difference of ICT self-efficacy of the undergraduates who involved from University of Peradeniya and University of Ruhuna. Regarding the ICTSS, the two universities have less amount of stress level and it is even less than the half of the mean of the stress scale. Therefore, the less stress level indicated that there are no

significant differences among undergraduates in these two universities.

The correlation coefficients of the study indicated that, ICTSE demonstrated a direct, statistically significant, negative relationship with ICTSS; -.350** (H1: P <0.01). This has been proved that, lower ICT stress would correlate positively with higher ICT self-efficacy supporting the above research Hypothesis (Table 4).

Table 4: Correlations Coefficients of ICTSE and ICTSS

Correlations

		ICTSE	ICTSS
ICTSE	Pearson Correlation	1	-.350**
	Sig. (2-tailed)		000
	N	321	321
ICTSS	Pearson Correlation	-.350**	1
	Sig. (2-tailed)	.000	
	N	321	321

**. Correlation is significant at the 0.01 level

The studies done by Compueau and Higgings, 1995; Compeau et al. 1999; Eastin and LaRose, 2000; Durndell and Haag, 2002; Thatcher and Perrewe, 2002 and Sam et al., 2005; also have revealed that, the Internet self-efficacy with Internet stress and computer self-efficacy with computer anxiety are negatively correlated with each other subscales. This can be elaborated further by the hypothesis; "The higher the individual's ICT self-efficacy, the lower his/her ICT stress".

References

Bandura, A. (1997). Self-efficacy: The Exercise of Control. New York: W. H. Freeman.

Durndell, Alan and Haag, Zsolt. (2002). Computer Self efficacy, Computer Anxiety, Attitudes Towards the Internet and Reported Experience with the Internet, by Gender, in an East European Sample. Computers in Human Bahavior, 18, 521-535.

Eastine, Matthew S. and LaRose, Robert. (2000 September). Internet Self-efficacy and the Psychology of the Digital Divide. Journal of Computer Mediated Communication (JCMC), 6 (1).

Karsten, Rex and Roth, Roberta M. (1998). Computer Self-efficacy: A Practical Indicator of Student Computer Competency in Introductory IS Courses. Information Science, 1 (3), 61-68.

Sam, Hong Kian., Othman, Ekhasan Abang., and Nordin, Zaimuarifuddin Shukri. (2005). Computer Self-efficacy, Computer Anxiety, and Attitudes Toward the Internet: A study Among Undergraduates in Unimas. Educational Technology & Society, 8 (4), 205-219.