A STUDY ON USE OF COMPUTER AMONG HIGHER SECONDARY STUDENTS AS RELATED WITH THEIR COMPUTER ANXIETY, INTERNET ATTITUDE AND SELF-EFFICACY IN COMPUTER

By

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ABSTRACT

The present attempt is to study the use of computer and its possible relationship to Internet attitude, self-efficacy in computer and computer anxiety among higher secondary students. The present study aims at finding the levels of use of computer, Internet attitude, Self-efficacy in computer and computer anxiety among higher secondary students. The investigators have randomly selected 802 higher secondary students from higher secondary schools as sample. From the study, it is evident that use of computer, computer anxiety, internet attitude and self-efficacy in computer is average in higher secondary students. The results show that there is a relationship between use of computer and internet attitude of higher Secondary students. The results reveals no relationship between Use of computer and Computer anxiety & Use of computer and self-efficacy in computer of higher Secondary students. This reveals that the use of computer, internet attitude and self-efficacy in computer of higher secondary students needs to be improved. Computer anxiety of higher secondary students needs to be reduced.

Keywords: Higher Education Students, Use of Computers, Computer Anxiety, Internet Attitude, Self-Efficacy in Computer.

INTRODUCTION

Now a day the world is changing rapidly with the technological advancement. So students must cater with the needs of the society. Information Technology is the most developing science. So the students must know the application of the Information Technology in daily life. This awareness depends upon the use of computer among the higher secondary students. The issue of student's computer anxiety may have far reaching effects when it comes to decisions as to how use of computer is integrated into the classroom. It is believed that if they possess less computer anxiety, then there may be a chance for them to make use of computer easily. Self-efficacy as defined by Bandura (1995) as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy in computer as defined by Venkatesh V (1996) as a judgment of one's capability to use a computer to produce designated levels of performance. It is believed that if they possess self-efficacy in computer, then there may be a chance for them to make use of computer easily. Internet attitude of higher secondary students may have far reaching effects when it comes to decisions as to use of computer. It is believed that if they possess high Internet attitude, then there may be a chance for them to make use of computer easily. So the present attempt is to study the use of computer among higher secondary students as related with their computer anxiety, Internet attitude and self-efficacy in computer.

Review of related literature

Abanamie, Mohanmed. A., (2002) Major Professor: Conic M. Forde conducted a study on "Attitudes of High School Students in Saudi Arabia toward Computers". Ph.D., Missisippi State University. The purpose of this study was to investigate the attitudes of male and female high school students in Riyadh, Saudi Arabia, toward computers. The findings of this study indicated generally that gender did not influence students' attitude towards computers in this study. However, on the subscale items, female students

had greater confidence in their abilities to learn and use computers than that demonstrated by their male counterparts. Furthermore, female students showed a higher degree of computer liking than their male counterparts. Place of residence did not influence students attitudes toward computers. Students from middle and high social class families had positive attitudes towards computers and higher computer confidence. Students from middle and high social class families also perceived computers as being useful, and showed a higher computer liking. Students from high-income parents were more likely to have higher attitude, higher liking and a favourable attitude towards computer than students from low-income parents. Students whose fathers or mothers held higher academic degrees had more confidence, perceived usefulness, and a positive attitude towards computers than students whose fathers or mothers held less than a high school degree. High school students enrolled in school in Riyadh, Saudi Arabia, appeared, to have a favourable and positive overall attitude towards computers. Students who had computer experience had more positive attitude towards computers than those students did not Students who started using computers in elementary and middle school held a more favourable attitude toward computers than those who started to use computers in high school. Also students whose teachers first taught them to use computers in elementary school held a higher degree of positive attitude toward computers than those students whose teachers first taught them to use a computer in high schools.

Albion, Peter R., (2001) conducted a study on 'Some Factors in the Development of Self-Efficacy Beliefs for Computer Use among Teacher Education Students', which describes a study at the University of Southern Queensland (Australia) that measured self-efficacy for computer use of teacher education students at the beginning of their course and again following a semester in which some students had completed computer courses. The amount of time spent using computers contributed most to the variance in self-efficacy.

Doyle, E., Stamouli, I., Huggard., (2005) studied "Computer anxiety, self-efficacy, computer experience: an investigation throughout a computer science degree". Considerable research has focused on the relationship between computer experience, computer anxiety and self-efficacy. These factors have been used both individually and in combination as predictors in the social sciences and business studies. However, very few studies investigate their effects in the area of computer science. This study focuses on capturing these factors across the four years of a computer science course at Trinity College, Dublin. It shows that as computer experience increases self-efficacy also increases while computer anxiety decreases with increasing experience.

Dharma Raja, B. William, Anandan, K., Mohan, S., (2000) conducted a study on "Computer Anxiety, Computer Attitude and Achievement in Computer Science among Rural and Urban Higher Secondary Students". objectives are i) To study the computer anxiety, computer attitude and achievement in computer science of the rural and urban higher secondary students; (ii) to find the correlation between computer anxiety and achievement in computer science; and (iii) to find out the correlation between computer anxiety, computer attitude and achievement in computer science among rural and urban higher secondary students. Computer Anxiety Scale (CANS) developed by Marcoxliakes et al., (1985) and improved by Jennifer L. Dyck et al., (1997) and 16-19 Computer Attitude Scale (CATS) by Nell Selwyn (1997) were administered for the collection of the data. Statistics like Mean, SD, CR and correlation were applied for data analysis. The findings are in general, (i) students had low computer anxiety and neutral attitude towards computers. (ii) There was no significant difference between rural and urban students in computer anxiety and computer attitude. (iii) The students of urban and rural areas did not differ significantly in computer achievement.

Kumaran, D and Selvaraj, K (2001) conducted a study on " A study of cognitive and affective computer attitudes of teachers". The findings of the study reveal that teachers have more favourable computer attitude and sex of teachers have significant influence on affective

computer attitude but no significant influence on cognitive computer attitude. Objectives are (i) To validate the cognitive and affective computer attitude scale using factor analysis; (ii) to study the computer attitude of the teachers; (iii) to study the cognitive computer attitude of the teachers; (iv) to study the affective computer attitude of the teachers, and ; (v) to study whether the teachers differ significantly in computer attitudes with respect to their personal background and contextual variables. The sample consisted of 275 teachers, selected through stratified random sampling techniques. The investigators developed the computer attitude scale for use in data collection. SD, and 't' test were used for the data analysis. The findings are (i) In general, teachers had more favourable computer attitude. (ii) The gender of the teachers had significant influence on affective computer attitude and no significant influence on cognitive computer attitude. Male teachers had more favourable affective computer attitude. (iii) Age of the teachers had little influence on computer attitude. (iv) Younger teachers had more favourable cognitive computer attitude subscale. (v) Teachers with post-graduation qualification had more favourable computer attitude. (vi) The teachers belonging to commerce and science faculty had more favourable cognitive and affective computer attitude.

Rajasekar.S., (2002) conducted a study on "University student's attitude towards computer". This study shows that gender subjects and locals of the university students do not influence their attitude toward computer and also a large numbers of university student have a relatively favourable attitude towards computer.

Sam, H. K., Othman, A. E. A., & Nordin, Z. S. (2005) conducted a study on "Computer Self-Efficacy, Computer Anxiety, and Attitudes toward the Internet: A Study among Undergraduates in Unimas". This survey research investigated undergraduates' computer anxiety, computer self-efficacy, and reported use of and attitudes toward the Internet. This study also examined differences in computer anxiety, computer self efficacy, attitudes toward the Internet and reported use of the Internet for undergraduates with different demographic variables. The findings suggest that the undergraduates had moderate computer anxiousness, medium attitudes toward the Internet, and high computer self-efficacy and used the Internet extensively for educational purposes such as doing research, downloading electronic resources and e-mail communications. However, there were differences in undergraduates' Internet usage levels based on the discipline of study.

Susan Harris, (1997) conducted a study on Secondary school students' use of computers at home. This article presents the results from a survey of students in Year 9 in secondary schools in England (ie, aged about 14 years) which investigated access to computers at home, frequency and duration of use, the applications used and students' reasons for using a computer at home. Responses showed that the majority of students had access to a computer, although few had one for their sole use. The most widely used applications were games/adventures and word processors. There were significant gender differences in access to computers at home, frequency of using computers and the applications that students spent most time on.

Objectives

The investigator has framed the following objectives for this present investigation.

- To find out use of computer and its possible relationship to computer anxiety, Internet attitude and self-efficacy in computer.
- To study the significance of the difference between the sub-samples of the students in respect of their Use of computer, computer anxiety, Internet attitude and self-efficacy in computer.
- To study the levels of use of computer, computer anxiety, Internet attitude and self-efficacy in computer among higher secondary students.

Hypotheses

- There is significant relationship between: i) use of computer with self-efficacy in computer, i) use of computer with Computer anxiety, iii) use of computer with Internet attitude - of higher secondary students.

- There is significant difference in the i) use of computer, ii) computer anxiety, iii) internet attitude, iv) self-efficacy in computer between: male and female higher secondary students; higher secondary students studying in urban schools and rural schools; higher secondary students studying in Science and arts subject; Parent's with knowledge about computer and Parent's without knowledge about computer of higher secondary students, Availability of Personal computer at home and non-availability of Personal computer at home- of higher secondary students.

Procedure

Tools

Tools used were a scale to measure use of computer among higher secondary Students constructed and validated by the investigator (2008), higher secondary student's Computer anxiety scale constructed and validated by the investigator (2008), higher secondary student's internet attitude scale constructed and validated by the investigator (2008) and a scale to measure self-efficacy in computer among higher secondary Students constructed and validated by the investigator (2008),

In the present study a scale to measure use of computer among the higher secondary students constructed and validated by the investigator was used. It is of the Likert type having as many as 32 statements. Each statement is set against a 5 point scale of "often", "always", "sometimes", "never" and weight of 4,3,2,1 were given in that order for the statements. An individual score is sum of all the scores for the 32 items. The score in the scale to measure use of computer range from 0 to 128. The reliability and validity of the scale is 0.62 and 0.78.

In the present study higher secondary student's computer anxiety scale constructed and validated by the investigator was used. It is of the Likert type having as many as 20 statements. 9 of them are positively worded and the remaining 11 are negatively worded. Each statement is set against a 5 point scale of "Strongly agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree" and weight of 4,3,2,1 & 0 were given in that order for the positive statements and the scoring is reversed for the negative statements, An individual score is sum of all the scores for the 20 items. The score in the computer anxiety scale range from 0 to 80. Reliability and validity of the Higher secondary student's computer anxiety scale is 0.79 and 0.88.

In the present study a scale to measure internet attitude constructed and validated by the investigator was used. It is of the Likert type having as many as 16 statements. Each statement is set against a 5 point scale of "often", "always", "sometimes", "never" and weight of 4,3,2,1 were given in that order for the statements. An individual score is sum of all the scores for the 16 items. The score in the Higher secondary student's internet attitude scale range from 0 to 64. The validity and reliability of the higher secondary student's internet attitude scale are 0.61 and 0.78

In the present study a scale to measure self-efficacy in computer among higher secondary students constructed and validated by the investigator was used. It is of the Likert type having as many as 16 statements. 8 of them are positively worded and the remaining 8 are negatively worded. Each statement is set against a 5 point scale of "Strongly agree", "Agree", "Undecided", "Disagree" and "Strong Disagree" and weight of 4,3,2,1 & 0 were given in that order for the positive statements and the scoring is reversed for the negative statements, An individual score is sum of all the scores for the 16 items. The score in the scale to measure self-efficacy in computer among higher secondary students range from 0 to 80. The reliability and validity of the scale is 0.74 and 0.86.

Sample

Cluster sampling technique has been used in the selection of the sample of as many as 802 students studying in the Higher Secondary Schools situated in the Thrissur district of Kerala, India. 25 Higher Secondary Schools have been chosen by lottery method from Thrissur district of Kerala. Out of these 25 Higher Secondary Schools, 11 happened to be located in the

urban areas and the remaining 14 were located in the rural areas. Likewise out of the 25 Higher Secondary Schools, 7 happened to be Higher Secondary Schools with science students and the remaining 18 happened to be Higher Secondary Schools with arts students. All the available students studying in each of these selected Higher Secondary Schools were chosen as sample. This sample of 802 students in the Higher Secondary Schools are found to have the following sub-samples: (i) Male Students (N=400), (ii) Female Students (N=402), (iii) Students from Urban schools (N=392), (iv) Students from rural schools (N=410), (v) Students studying in science subject (N=400), (vi) Students studying in arts subject (N=402), (vii) higher secondary Student's Parents with knowledge about computer (N=211), (viii) higher secondary Student's Parents without knowledge about computer (N=591), (ix) higher secondary Student's Availability of Personal computer at home(N=145), (10) higher secondary Student's no Availability of Personal computer at home(N=657).

Statistical Treatment of the Data

The means and standard deviations of the use of computer scores, computer anxiety, internet attitude and self-efficacy in computer scores were computed directly from the respective raw scores for the entire sample and its five sub-samples of the higher secondary students. Pearson's product-moment 'r' was computed between use of computer and computer anxiety , use of computer and internet attitude, use of computer and self-efficacy in computer scores of the higher secondary students as shown in Table 1.

The percentages of the entire sample of the higher secondary students who had high, average and low level of use of computer, internet attitude, self-efficacy in computer, computer anxiety were computed as shown in Table 2, Table 3 Table 4 and Table 5.

The test of significance was used ('t' test) in order to study if there was any significant difference between each selected pair of sub-samples in respect of their use of computer, computer anxiety, internet attitude and self-efficacy in computer as shown in Table-6, Table 7, Table 8 and Table 9.

Findings

- There is no significant relationship between the use of computer with self-efficacy in computer of higher secondary students.
- There is no significant relationship between use of computer with Computer anxiety of higher secondary students.
- There is significant relationship between use of computer and Internet attitude of Higher Secondary

Variables	Correlation coefficient Entire sample (802)
Use of computer with Computer anxiety	0.05
Use of computer and Internet attitude	0.14**
Use of computer with self-efficacy in computer	0.04

** Significant at 0.01 level

Table1. Coefficient of correlation between the variables

Use of computer	Frequency	Percentage
Low	203	25.31
Average	383	47.76
High	216	26.93
Total	802	100.00

Table 2. Frequency distribution of level of use of computer

Computer attitude	Frequency	Percentage
Low	203	25.31
Average	383	47.76
High	216	26.93
Total	802	100.00

Table 3. Frequency distribution of level of computer anxiety

Computer attitude	Frequency	Percentage
Low	203	25.31
Average	379	47.26
High	220	27.43
Total	802	100.00

Table 4. Frequency distribution of level of Internet attitude

Computer attitude	Frequency	Percentage
Low	220	27.43
Average	350	43.64
High	232	28.93
Total	802	100.00

Table 5. Frequency distribution of level of self-efficacy in computer

Variable	Category	Mean	S.D	N	Calculated " t " value	Significance at 5% level
A. Gender	Male	71..09	13..75	400	5.44	S
	Female	65.85	13.56	400		
b. Location	Urban	68.15	14.76	389	0.63	NS
	Rural	68.77	13.03	411		
c. Stream of subject	Science	66.73	15.32	399	3.54	S
	Art	70.19	12.09	401		
d. Parents knowledge about computer	Yes	73.79	12.66	211	6.65	S
	No	66.57	13.83	589		
e. Availability of Personal computer at home	Yes	74.76	13.48	145	6.16	S
	No	67.08	13.61	655		

(Table value of 't' at 5% level of significance is 1.96)

Table 6. Data and results of the test of significance of difference between mean scores of use of computer based on relevant sub-samples

Variable	Category	Mean	S.D	N	Calculated 't' value	Significance at 5% level
a. Gender	Male	49.68	9.65	400	3.18	S
	Female	47.52	9.54	400		
b. Location	Urban	49.05	9.31	389	1.29	NS
	Rural	48.17	9.95	411		
c. Stream of subject	Science	49..68	9.65	399	0.08	NS
	Art	47.52	9.54	401		
d. Parents knowledge about computer	Yes	51.66	9.14	211	5.47	S
	No	47.50	9.6	589		
e. Availability of Personal computer at home	Yes	52.23	8.71	145	5.08	S
	No	47.80	9.67	655		

(Table value of 't' at 5% level of significance is 1.96)

Table 7. Data and results of the test of significance of difference between mean scores of computer anxiety based on relevant sub-samples

students.

- There is significant difference in the use of computer between male and female higher secondary students. Compared to female, the male higher secondary students have better use of computer.
- There is significant difference in the use of computer between higher secondary students studying in Science and arts subject. Compared to science, arts higher secondary students are better in use of computer.
- There is significant difference in the use of computer

Variable	Category	Mean	S.D	N	Calculated 't' value	Significance at 5% level
A. Gender	Male	42.32	8.39	400	1.21	NS
	Female	41.60	8.46	400		
b. Location	Urban	42.31	8.39	389	1.13	NS
	Rural	41.64	8.47	411		
c. Stream of subject	Science	44.10	8.07	399	7.37	S
	Art	39.85	8.26	401		
d. Parents knowledge about computer	Yes	42.54	7.97	211	1.15	NS
	No	41.76	8.59	589		
e. Availability of Personal computer at home	Yes	42.32	7.66	145	0.57	NS
	No	41.89	8.60	655		

(Table value of 't' at 5% level of significance is 1.96)

Table 8. Data and results of the test of significance of difference between mean scores of internet attitude in computer based on relevant sub-samples

Variable	Category	Mean	S.D	N	Calculated 't' value	Significance at 5% level
a. Gender	Male	34.88	5.36	400	0.26	NS
	Female	34.78	5.51	400		
b. Location	Urban	34.72	5.23	389	0.53	NS
	Rural	34.93	5.62	411		
c. Stream of subject	Science	34.54	4.61	399	1.53	NS
	Art	35.12	6.12	401		
d. Parents knowledge about computer	Yes	35.27	4.73	211	1.36	NS
	No	34.68	5.66	589		
e. Availability of Personal computer at home	Yes	35.49	4.71	145	1.62	NS
	No	34.68	5.57	655		

(Table value of 't' at 5% level of significance is 1.96)

Table 9. Data and results of the test of significance of difference between mean scores of self-efficacy in computer based on relevant sub-samples

between Parent's with knowledge about computer and Parent's without knowledge about computer of higher secondary students. Compared to parents without knowledge about computer, parents with knowledge about computer of higher secondary students have better use in computer.

- There is significant difference in the use of computer between Availability of Personal computer at home and non-availability of Personal computer at home of higher secondary students. Compared to non-availability of Personal computer at home,

availability of computer at home of higher secondary students have better use in computer.

- There is no significant difference in the use of computer between higher secondary students studying in urban schools and rural schools.
- There is no significant difference in the self-efficacy in computer between male and female higher secondary students; higher secondary students studying in urban schools and rural schools; higher secondary students studying in Science and arts subject; Parent's with knowledge about computer and Parent's without knowledge about computer of higher secondary students, Availability of Personal computer at home and non-availability of Personal computer at home of higher secondary students.
- There is significant difference in the Computer anxiety between male and female higher secondary students. Compared to female, male higher secondary students had more computer anxiety.
- There is significant difference in the Computer anxiety between Parent's with knowledge about computer and Parent's without knowledge about computer of higher secondary students. Compared to parents without knowledge about computer, parents with knowledge about computer of higher secondary students had more Computer anxiety.
- There is significant difference in the Computer anxiety between Availability of Personal computer at home and non-availability of Personal computer at home of higher secondary students. Compared to non-availability of Personal computer at home, availability of Personal computer at home of higher secondary students had more Computer anxiety.
- There is no significant difference in the Computer anxiety between higher secondary students studying in i) urban schools and rural schools ii) Science and arts subject.
- There is no significant difference in the Internet attitude between: male and female higher secondary students; higher secondary students studying in urban schools and rural schools; Parent's with knowledge about computer and Parent's without knowledge about computer of higher secondary students, Availability of Personal computer at home and non-availability of Personal computer at home of higher secondary students.
- There is significant difference in the Internet attitude between higher secondary students studying in Science and arts subject. Compared to arts, Science students are better in Internet attitude.
- About 26.93% of higher secondary students, taken for the study have shown high use of computer whereas 47.76% and 25.31% of higher secondary students, taken for the study have shown average and low use of computer.
- About 28.93% of higher secondary students, taken for the study have shown high self-efficacy in computer whereas 43.64% & 27.43%, taken for the study have shown average and low self-efficacy in computer.
- About 26.93% of higher secondary students, taken for the study have shown high computer anxiety where as 47.76 % and 25.31% of higher secondary students taken for the study have shown average and low computer anxiety.
- About 27.43% of higher secondary students, taken for the study have shown high Internet attitude whereas 47.26 % & 25.31% of higher secondary students, taken for the study have shown moderate & low Internet attitude.

Summary

The present study aims at finding the levels of use of computer, Internet attitude, Self-efficacy in computer and computer anxiety among higher secondary students. And it is also endeavoured to find out the relationship between use of computer and self-efficacy in computer among higher secondary students. It advocates to develop the use of computer, internet attitude and self-efficacy in computer. Computer anxiety among the selected higher secondary students needs to be reduced.

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