

Computer Anxiety, Computer Self-Efficacy and Attitude towards Internet among Secondary School Students in Akwa Ibom State, Nigeria

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Received September 15, 2018; Revised October 19, 2018; Accepted November 09, 2018

Abstract This study was conducted to determine the influence of computer anxiety and computer self efficacy on the attitude of students to internet in selected model secondary schools in Akwa Ibom State, Nigeria. Students' attitude towards the use of internet has been an issue of great concern to teachers of computer science. Three hypotheses were stated to guide the researcher in the course of the study. An ex post facto design was used and the population of the study consisted of one thousand eight hundred and two senior secondary 2 students of model secondary schools in Akwa Ibom State, Nigeria. The sample consisted of six hundred students drawn using the stratified random sampling technique. Students' computer Anxiety, Computer Self-efficacy and Attitude to Internet Questionnaire (SCASEAIQ) was the instrument used to collect data for the study. The questionnaire was divided into three sections. Each of the sections consisted of twenty items. The researcher visited the students and personally administered the instrument. Data analysis was done using Pearson Product Moment Correlation and independent t-test. All the hypotheses were tested at .05 level of significance. Findings revealed that there is a significant positive relationship between students' computer anxiety and attitudes towards internet. There is a significant positive relationship between students' computer self-efficacy and attitude towards internet. Computer anxiety and computer self-efficacy significantly influence students' attitude towards internet. It was concluded that students' computer anxiety and computer self-efficacy influenced students' attitudes toward the internet.

Keywords: computer education, anxiety, self-efficacy, internet, attitudes, students

Cite This Article: Iniobong F. Akpan, "Computer Anxiety, Computer Self-Efficacy and Attitude towards Internet among Secondary School Students in Akwa Ibom State, Nigeria." *American Journal of Educational Research*, vol. 6, no. 11 (2018): 1455-1459. doi: 10.12691/education-6-11-2.

1. Introduction

Information and Communication Technology (ICT) has gained global acceptance within a short space of time [1]. Most developed and developing countries now see major benefits of using ICT and mastering the basic skills and concepts of ICT as a major part of their academic programme, alongside reading, writing and numeracy.

Also ICT is very essential for the economic, socio-political and cultural development of any country. The world has become a global village and Nigeria's human resources need to be developed in the area of new technologies to fit into the heart beat of the moment. Everyone needs to become familiar with information processing and computing whether in the home, office, School, Colleges or factory. Nigeria needs a new generation of students who should not only be experts in their fields, but also computer literate.

Akpan [2] notes that the use of computers in the classroom has been proved to be advantageous in many ways. Not only has it been found to facilitate students'

learning, but it has also been found to develop students' ability to learn independently, analyse information, think critically and solve problems. Kulick (1984 in Akpan [3]) asserts that there is a steady increase in students study speed across studies of computer-assisted instruction. Frizler [4] notes that even though they will never sideline teachers, computers tend to give excellent and fairly inexpensive supplementary materials to enhance instruction.

The appearance of the internet in education has helped students to communicate and share project data. The internet is the rich, multi-layered, and complex over-changing textual environment for teaching and learning. It is relatively fast, with its advantage of being accessible at all times and can be used from an individual owner's computer. The internet provides an opportunity for academic work. More and more students are doing their assignments exclusively through the internet [1]. It is a mechanism for information dissemination and a medium for corroborative interaction between individuals and their computers without regard to geographical limitation of space.

In Nigeria, computer education has been made compulsory at both the primary and secondary levels of

education [4]. Computer skill is an all-purpose tool and can be applied throughout life. It is difficult to imagine a world without the computer [5]. Considering the importance of the computer, Igwe [6] asserts that the development of computer education of high standard is imperative. Fafunwa (1984) in Akpan [3] on his part remarks that we now live in a world where science and technology have joined the arts and humanities as dominant cultures and so it has become mandatory for all our young people to be computer literate if they are to lead a satisfying and happy life. Surprisingly, despite the widely acknowledged importance of computer and computer education and inspite of the efforts of government and private school proprietors to encourage computer education, there is enough evidence to show that secondary school students are under-achieving in computer education [7]. What makes the situation totally demoralising is the result of the first and second International Studies on Education (ISE). These studies revealed that African Secondary School Students are lagged behind in science and mathematics including computer science [8]. It is sad to note that in the second ISE Science Study (SISS) in 1983-84, Nigeria came last and second to the last at the 10th and 14th year old level in mean science achievement, including computer [8]. This situation does not favour the country's move towards developing scientific and technological culture, including computer literacy.

Several factors have been identified as contributing to students' poor utilization of the computer and internet in schools after being exposed to these technologies. A review of the literature shows that among others, computer anxiety, computer self-efficacy and attitude towards computer and internet exert great influence on students' performance in using computer and internet [9].

Howard and Smith (1986) in Akpan [3] defined computer anxiety as the fear of intending interaction with a computer that is disproportionate to the actual threats presented by the computer. Self-efficacy is the perceived ability to accomplish a task rather than Simple component skills [10]. Computer self-efficacy represents a comprehensive judgement of one's ability to perform a task using the computer. Self-efficacy is not a static or stable trait, but rather a situation-specific; dynamic judgement that changes with acquired information such as the change of environmental setting or the change of task conditions and feedback [11].

Computer anxiety has been found by Igbaria & Chakrabarti [12] to cause some individuals to avoid using the computer and internet to complete some tasks. The presence of computer phobia and anxiety of people in the workplace can lead to serious problems including sabotage, increase in mistakes, decline in motivation, poor work quality and morale, absenteeism as well as interpersonal conflicts. Sam, Abang & Zaimuarrifudden [13] found in the study that high computer anxiety made students to have negative attitudes towards the use of internet. Durndell and Haag [14] found a significant zero order correlation between lower computer anxiety and more positive attitude towards internet.

Computer self-efficacy has been found to have a strong positive correlation with computer attitude [10]. Computer self efficacy was also found to be positively related to computer experience [15]. Pauli, Gilson & May [16] found that students with moderate levels of computer self

efficacy had high level of attitude towards the internet. The correlation matrix also supports the strong positive relationship between computer self efficacy and attitudes towards the internet.

The problem of this study then was to assess the influence of computer anxiety and computer self efficacy on the attitude of students towards internet in Akwa Ibom State, Nigeria.

The purpose of the study was to investigate the influence of computer anxiety and computer self-efficacy on students attitude towards internet. Specifically, the study sought to achieve the following objectives:

- i) Examine the relationship between students' computer anxiety and attitude towards internet.
- ii) Examine how students' computer self-efficacy relate to their attitude towards internet.
- iii) Determine whether computer anxiety and computer self-efficiency has any significant influence on students attitude towards the internet.

2. Hypotheses

The following hypotheses were formulated to guide the study:

- i) There is no significant relationship between computer anxiety and students attitude towards the internet.
- ii) Students computer self-efficacy skills do not significantly relate to their attitude towards internet.
- iii) Computer anxiety and computer self efficacy have no significant influence on students' attitude towards the internet.

3. Methodology

This study used an *expost facto* research as the researcher did not have direct control of independent variables since their manifestation had already occurred.

The population of the study comprised one thousand eight hundred and two senior secondary 2 students in all model Senior Secondary Schools in Akwa Ibom State, Nigeria. They were used as they were expected to have had enough computer experience based on their exposure to the computer from their junior Secondary Level.

A sample of 600 students was selected using the stratified random sampling technique. The basis of stratification was the local government area. Thirty model secondary schools were selected using a table of random numbers, and from each of them, two schools were selected and from each of the two schools selected, 20 students were selected using the simple random sampling method. The first twenty 20 students whose serial numbers first appeared in a table of random numbers were selected for the study.

A questionnaire titled Students Computer Anxiety, Computer Self efficacy and Attitude to Internet Questionnaire (SCASEAIQ) was used to collect data for this study. The first section of the questionnaire entitled students' computer anxiety rating scale (SCARS) was used to collect data on students' level of computer anxiety. It was a 20-item, four point Likert-type self-reported computer

anxiety scale that was adapted from the work of Heijnsen, Glass and Knight [17]. The scale has items such as "I hesitate to use a computer for fear of making mistakes that I cannot correct."

The second section of the questionnaire was students' computer self-efficacy scale (SCSES) adapted from the work of Murphy, Coover and Owen [18]. This was a 20-item scale which began with the phrase "I feel confident." The scale has items such as "I feel confident working on a personal computer."

The third section of the questionnaire was Students' Internet Attitude Scale (SIAS). This was a 20-item self reported questionnaire from the computer attitude scale developed by Nickell and Pinto [19]. In SIAS, the word "computer" was replaced with "internet" on all the items in the scale

4. Results

The data were analyzed by calculating Pearson Product Moment Correlation and independent t-test. The calculated results of the variables are as shown on the tables below.

Table 1. Pearson Product Moment Correlation Analysis of Students' Computer Anxiety, Computer Self-Efficacy and Attitude towards Internet (N=600)

Variables	N	\bar{X}	S	$\frac{\sum x^2}{\sum y^2}$	$\sum xy$	r	Sig
Computer Anxiety	600	65.412	7.369	32527.318	13753.303	.486*	.000
Computer Self Efficacy	600	93.660	13.908	115858.140	23185.960	.460*	.000
Attitude to Internet	600	60.157	6.414	24645.273			

Table 2. t-test analysis of the influence of computer anxiety and computer self-efficacy on students' attitude towards internet

Variables	N	\bar{X}	SD	t. calculated
Computer self efficacy	600	93.660	13.908	
Computer Anxiety	600	65.412	7.369	43.932*

*. P<. 05; df = 598; critical-t = 1.96.

The result in Table 1 on students' computer anxiety and attitude towards internet shows that the calculated r-value is .485 which is significant at .05 level of significance. This mean that there is a positive and significant relationship between computer anxiety and students attitude towards the internet. It suggests that students attitude towards the internet becomes more positive as their computer anxiety increases and vice versa.

The result in Table 1 on students' computer self efficacy and attitude towards internet shows that the calculated r-value is indicating that there is a positive and significant relationship between students' computer self-efficacy and their attitudes towards the internet. This observed positive relationship implies that as students computer self efficacy increases, their attitude towards internet also increases.

The result in Table 2 shows the t-test analysis of the influence of computer anxiety and computer self-efficacy

on students' attitude towards internet. The result shows that the mean computer self-efficacy score is 93.660 with a standard deviation of 13.908 while the mean for computer anxiety is 65.412 with a standard deviation of 7.369. The calculated t-value is 43.932 at .05 level of Significance. Since the calculate t-value is greater than the critical value of 1.91 at .05 level of significance, it means that the calculated t-value is statistically significant. This implies that there is a significant influence of computer anxiety and computer self-efficacy on students' attitude towards internet. In other words, the mean of computer self-efficacy and that of computer anxiety differs significantly. Specifically, computer self-efficacy has a significantly higher influence on students' attitude towards internet than computer anxiety. The null hypothesis was therefore rejected

5. Discussion of Findings

The first finding that computer anxiety has a significant relationship with students' attitude towards the internet means that the students' attitude towards the internet becomes positive as their computer anxiety increases. This finding corroborates that of Bozconelos [20] and Bradley and Russel [21] who found that computer anxiety impacted positively on students' use of the internet. This result implies that the students display favourable disposition towards internet possibly based on their past experiences with computers in their earlier stage in life, some preferably at the elementary schools. This result has empirical evidence to support the saying that "the more is better" since there is a positive relationship between computer anxiety and attitude towards internet. This is also in agreement with the saying that computer anxiety would become less a factor in attitude to internet as time went on because each year students are finding computer a mere "normal" part of their lives. The above findings also suggest that computer anxiety may not disappear as computer and internet experience becomes more universal. Computer anxiety is created, it is not a birth defect needed to be healed. Thus, despite the positive attitude developed, anxiety may still be there. Attitude can also explain students' acceptance or rejection of the internet. Moreover, positive attitudes are pre-requisite guarantee for efficacy skills which may likely reduce anxiety. Students with a positive attitude are more successful in internet-mediated tasks aside from working more efficiently. Attitude affects people in everything they do and in fact, reflects what they are and hence is a determining factor of people's attitude to the task. Generally, increase in attitudes towards internet as a result of increase in computer anxiety may be attributed to the school environment. This is because model secondary school students are expected to be computer literate before leaving the school. Therefore, increase in anxiety increases their attitude towards internet.

The second finding of the study that computer self-efficacy had a significant relationship with students attitude towards the internet implies that as students computer self efficacy increases, their attitude towards the internet also increases or becomes more positive. This is in agreement with Akpan [2] who noted that the general attitude to the computer and internet may be influenced by

the students' level of self-efficacy skills. The perception of the individual of the computer will determine the attitude to internet. This is also supported by earlier work of Compeau & Higgins [10] & Smith-Jentsch, Jentsch, Payne & Sales [22] that confirmed the existence of a positive relationship thus demonstrating that as the level of computer self-efficacy increases, the attitude towards internet increases. This shows that increased computer self-efficacy could reduce the effect of computer anxiety if anxiety negatively affect an individual use of internet. Through positive specific usage experience it would seem that the effect of computer anxiety can be controlled. This supports the argument that the effect of emotional arousal change self-efficacy beliefs, that the primary determinant of behavioural intentions is self-efficacy beliefs. Also based on self-efficacy theory, students with strong self-efficacy beliefs exert a greater positive attitude to the internet while those with weak self-efficacy beliefs exert negative attitude to the internet. This means that the higher the level of self-efficacy skills of the students the higher the positive attitude towards the internet and vice versa. It is also believe that mastery experiences, modeling and actual use of computer can positively affect a person's computer self-efficacy which will in turn help to reduce avoidance of internet use.

On the contrary, Stojkovic and Luthans [23] found out that an individual's level of self-efficacy is affected by situational factors such as environmental contexts which may negatively influence self-efficacy and attitude to the internet by increasing personal anxiety through thought of failure. This emotional arousal may be perceived by the individual as signs of vulnerability to poor attitude. However, this emotional arousal is only one portion of the factors affecting self-efficacy and attitude to the internet thus can be control.

The third finding indicates that computer self-efficacy and computer anxiety influence internet attitude. The more self-efficacy skills one has and anxiety the user feels about the internet, the more positive attitude the user seems to have towards the internet. The implication may suggest that attitude towards the internet may be influenced by the users level of self-efficacy and anxiety. For improved attitude towards the internet, the user may adopt user-friendly interface, easy navigation, and appealing interaction. This finding corroborates an earlier finding by Marcoulides, Mayes and Wiseman [24] that people could pick up computer skills quicker when they are less anxious and computer self efficacy enhances attitude towards the internet.

Self-efficacy theory suggests that those who feel their capabilities are inferior to the task they are confronting would cease their effort prematurely, While those with stronger self-efficacy are willing to persist in coping with difficulty and achieving their goals (Bandura, 1977 in Akpan [3]). This study is indirectly in support of this self-efficacy theory that students have a positive attitude towards the internet only when they perceive themselves to be capable of dealing with this new tool to meet the challenge of the digital economy, schools need to get on the cyberspace bandwagon and understand the intricate tapestries of the intangible culture and patterns in the usage of the internet. The capability to adapt quickly to this new cyber space culture would have advantages for students' computer self-efficacy which is a contributor to

students' attitude towards the Internet. Thus both computer anxiety and computer self-efficacy influences significantly students' attitude to the internet although their variables do not influence equally the variance in students' attitude towards the internet.

However, the deference in the level of influence by the variance may be in the level of exposure of these students to the internet. From the result it is seen that computer self efficacy has a higher mean value than computer anxiety. This implies that computer self efficacy exerts a greater influence on students' attitude towards internet than computer anxiety. Integrating the internet in their daily computer exposure may bring about a positive attitude towards the internet through reduced anxiety. This fact is supported by Spielberger (1966 in Akpan [3]) trait-state anxiety theory which states that high anxiety is detrimental to task performance while moderate anxiety serves as an emotional drive and hence is incremental.

6. Recommendations

Based on the findings of the study the following recommendations were made;

- Computer teachers should strive towards reducing computer anxiety among their students. This can be done by identify those with very high computer anxiety and intervene early.
- The teacher should introduce educational games or word processing into classroom computer instruction.
- The state government should liaise with ICT professionals to ensure that computer peripherals and network facilities are supplied in all public secondary schools.
- More practical work should be included in computer science lessons to help students acquired more skills that will enhance their computer self efficacy

7. Conclusion

Computers and the internet play a great role in learning and national development. Students have to become computer literate if they must contribute meaningfully to national development. Computer anxiety, computer self efficacy and attitude towards internet can influence their performance in computer science. Teachers have to take steps to reduce high anxiety in students to enhance their computer self efficacy in order to improve their competence in internet use.

Acknowledgements

I wish to appreciate the principals, teachers and students of all model schools that were used in the study. Their cooperation were immeasurable.

I also thank all the authors that their works are cited in this study.

Finally, I thank the management of Akwa Ibom State University, Akwa Ibom State, Nigeria for the enabling environment provided for me to be able to carry out this research study.

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