AN EVALUATION OF THE RELATIONSHIP BETWEEN SCHOOL TYPE, GENDER DIFFERENCE AND STUDENTS' COMPUTER ANXIETY IN EKITI STATE

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Abstract
This study evaluated the relationship between school type, gender difference and Students' Computer Anxiety in Ekiti State, Nigeria. The study specifically examined how anxious students are about computer in public and private secondary schools and also assessed gender differences in the anxiety of students in Ekiti State. The descriptive research design of the survey type was used in this study. The population for the study consisted of 33,187 students in Ekiti State, Nigeria. The sample consisted of 600 students selected through multistage sampling procedure. The 20 items on computer anxiety scale was administered to the students on a two point continuum. Test re-test reliability method was employed in the study, copies of the instrument were administered on a group of
20 students who are not among the sample for this study and a reliability coefficient (0.69) of the instrument was obtained. Analyses of the results were presented, using descriptive and inferential statistics. The evaluation question raised was answered using frequency counts and percentages while the two generated hypotheses were tested using t-test. The findings of this study showed that the majority of the secondary school students in Ekiti State are anxious about using computer systems. There was a significant difference between computer anxiety of students in public and private secondary schools. There was no significant difference between students' gender and their computer anxiety in Ekiti State secondary schools. Based on the findings of this study, it was therefore recommended that: Students need to develop confidence in the use of computer systems in the school. Public schools should be well furnished with computer systems and be used to train both the teachers and the students. There should be no gender discrimination on the part of the students when it comes to training of the students, using computer system in the schools
Keywords; Evaluation, Type of School, Gender difference, Computer anxiety, Students

Introduction

The usage of Computer technology in the society nowadays has enabled people to access more information than ever. Computer has been seen and recognized as not only a strong technology tool for managing information and enhancing productivity but also an efficient instrument for education and training. In this information age, people are coping with the growing demand of being computer literate. There is the need to be able to operate computer to function at places of work and schools. As people are pushed into the increasing interaction with computers, some respond with enthusiasm and desire to become the master of the machines. Others approach the situation with fear and apprehension.

Computer has been conceptualized as an electronic device which is capable of carrying out sequences of arithmetic or logical operations automatically (Wikipedia). The anxiety about using computers troubles quite a number of people and it affects their training effectiveness and job productivity.

Anxiety according to Adam (2020) is defined as an emotion which is characterized by feelings of tension, worried, thoughts and physical changes like increased blood pressure. It is a tense, unsettling anticipation of a threatening but vague event: a feeling of uneasy suspense. A negative effect so closely related to fear that in many circumstances the two terms are used interchangeably, which may assume a pathological form, resulting in repressed thoughts, negative conditioned response, poor coping strategies and increased sympathetic tone of the autonomic system (Craig, Brow & Baum, 2000).

Computer Anxiety as a phenomenon accompanies the growing use of computers in the society; people in business, industry and government are involved as major users of computer services and as leaders in the computer field. Computer assisted instruction and computer managed instruction have brought the computer into the classroom.

Computer anxiety according to Umair, Aijaz, Baby, Ghulam, Mairaj and Rameez (2021) is a field of study that deals with fear and nervousness experienced by the people while using the computer systems. Technophobia or computer anxiety, which isn't a formally identified mental disease, is the unreasonable mental state in which the users develop an anxiety of innovation. Technophobia is depicted as abnormal fear or anxiety that puts a negative impact on professional progress and innovation, affecting health, causing health issues and affects one's ability of doing work effectively

The Economic Commission for Africa (ECA) has indicated that the ability to access and use information is no longer a luxury but a necessity for development. However, many developing countries, according to Aduwa and Iyamu (2005) are still lagging behind in Information and Communication Technology (ICT) application. The ability to use computers effectively has become an essential part of everyone's education. Skills such as book keeping,

clerical and administrative work, stocking taking and so on, now constitute a set of computerized practices that form the core IT skills package; spreadsheets, word processor and database (Reffel & Whitworth, 2012).

School managers and administrators also make judicious use of computer. It serves as a tool for supporting the various components of education, such as teaching and learning, resources management i.e human material and financial, admission and examination processes i.e Computer Based Test (CBT) in which tests are administered and are responded, recorded and assessed electronically.

The Federal Government of Nigeria introduced computer education into the nation's Secondary School system in 1988 through the policy enactment of the National Computer Policy. Today, the trend appears to be towards integrating computer technology in other content areas across the curriculum. Computer technology has increasingly been applied towards non-instruction (record keeping, grade averaging, communication e.t.c) and pre-instructional (developing materials, researching instructional content, e.t.c) uses. This great change has brought forth a fresh perspective in the use of computers in the teaching-learning process.

The recent advancement in information technology innovations and computer usage is rapidly transforming work culture and teachers cannot escape the fact that today's teaching must provide technology-supported learning. Moreover, links have been made between computer use and constructivist, collaborative and inquiry-based learning and also pedagogical change (Scrimshaw, 2004). Some researchers suggest that computer technology can overhaul education, serving as a panacea or as an agent of change. Generally, it is accepted that computers have the potential to enhance teaching and learning (Gordin, Hoadle, Means, Pea & Roschelle, 2000) and provide students with learning experience that other strategies cannot provide (Wellington, 2005).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) implemented Beijing workshop (2003) on training in computer Integration discussed guidelines for developing Competency Based Standards for student Curriculum which comprised core competencies related to pedagogy(new ways of doing things, new theories of learning, pedagogical skills, selection, presentation and assessment); technology (related concepts and operations, social health, legal and ethical issues); and technology-pedagogy integration (ethical and legal use of technology to design effective learning experiences, manage students' learning, improve professional skills, support interaction in learning social communities).

According to Oak (2012), Computer technology has had a deep impact on the education sector. Imparting education has become easier and much more interesting than before because of Computer. Owing to memory capacities of computers, large chunks of data can be stored in them. They enable quick processing of data with little chance of errors in processing. Networked computers

aid quick communication and enable web access, storing documents on computers in the form of soft copies instead of hard ones, helps save paper.

Computers have now been accepted " unconditionally " as an integral part of our entire educational system. The increase in computer usage is rapid and has also generated new challenges. In fact, one of the most dynamic and innovative areas of growth in education is the utilization of computer technology. Shinn (2001) asserted that for a school to remain competitive it also must adapt to changes and be innovative with its use of computer. She further stated that, despite income, school budgets and location, soon all students will have access to information through the internet. Today, the internet is being used as a payment method; telecommunication traffic is also possible through the computer video and audio services (Jonah, 2007).

There are many researchers who have developed scales to measure computer anxiety. Studies have focused on the various factors involved in this phenomenon such as gender, computer experience, parental and peer influences, self-efficacy. Maurer and Simonson (1984) designed the Computer Anxiety Index (CAIN) that uses a 26-item Likert-type scale that measures participants' anxiety towards computers by examining avoidance, negative attitudes, anxiety, and computer comfort.

To measure computer anxiety, Harrison and Rainer (1992) used the CARS developed by Heinssen et al (1987) administered to 693 university personnel perception regarding specific computer-related knowledge and skills. The authors' study produced two factors such as high anxiety toward computer use and confidence, enthusiasm or anticipation of computer use. There was however, little agreement as to the specific factors to measure computer anxiety among respondents.

In his own study, Olanrewaju (2019); "Construction and Validation of University Lecturers' Disposition Towards Teaching Profession in Southwest Nigeria", developed a scale in which anxiety is one of the factors measured. The outcome of the study revealed that there was a difference between male and female lecturers' anxiety in using the scale.

Computer experience has a negative relationship with an individual's computer anxiety (Beckers & Schidt, 2003). Individuals who have computers at home or have used computer have lower computer anxiety than those who do not. Broos (2005) also found out that computer use and self-perceived computer experience have a positive effect on decreasing computer anxiety.

According to Broos (2005) and Arnkoff (2004), female students are more anxious about computers than their male counterparts. A meta-analysis also concluded that women in general had stronger negative attitudes toward computers. Schumacher and Morahan-Martin (2001) stated that the increasing overall computer use in the United States did not diminish gender differences in

computer experiences. Their study found that gender differences continually exist among college students. Female college students have higher computer anxiety than male students. They also have more negative attitudes toward computers.

A large body of literature already exists on assessment using computers and paper and the attitude and preferences of stakeholders. As reported by Alabi, Issa and Oyekunle (2012), when students are motivated and testing conditions are equivalent, there are no differences between the scores obtained via Computer Based Tests (CPT) or Paper Pencil Tests (PPT). Karadeniz (2009) studied the impact of paper based, web based and mobile based assessment on students' achievement. The study revealed that students had positive attitude towards web based and mobile based assessment due to ease of use and comprehensive and instant feedback. Moreover, most favoured tests were web based and the least favoured were paper based.

A study by Ayo, Akinyemi, Adebiyi and Ekong (2007) on Nigerian University found that 81.3% of the applicants were computer literate while the remaining 18.7% were guided through the examination. The total number 1023 (75.7%) of respondents who participated in the e-examination conducted in Covenant University took electronic examination for the first time and as such found the examination easy, a few found it a little challenging but adjusted with time. The study revealed that only 327 (24.2%) of the applicants had not been involved in any form of electronic examination before and found it difficult.

According to Olatoye (2009), in Nigeria, many public and private schools lack enough computer systems to teach and train students. Most research reports and literature review on computer education continue to come from developed countries. Many teachers are yet to incorporate Computer-Assisted Instruction in teaching. Many students who do not have access to internet facilities in school make use of commercial internet centres (cyber cafés) outside the school.

Evaluation is a judgment about a number, amount, or value. According to Wikipedia (2020) Evaluation is a systematic determination of a subject's merit, worth and significance, using criteria governed by a set of standards. It is defined by the American Evaluation Association (2014) as the systematic process to determine merit, worth, value, or significance. To evaluate the proper implantation of the use of computer systems in secondary schools, one cannot do away with the psychological wellbeing of the stakeholders in education sectors such as students and teachers in which their anxiety about the concept is a point of concern.

Computer anxiety is the state of heightened tension, a feeling of apprehensive expectation and fear of using computer by an individual. The commencement of Computer Based Test (CBT) in 2012 together with the Paper and Pencil Test (PPT) by the Joint Admissions Matriculation Board (JAMB) has

raised the prospects of computer anxiety in students who need to be examined are of concern.

Equally worrisome is the fact that, students in public and private secondary schools might not have equal access to computer both for learning and for practice, many candidates might not have had adequate encounter with computer either at home or at school and students from public schools or poor families might not have the opportunity to obtain private computer training.

In Ekiti State, many public and private schools lack enough computer systems to teach and train students. There is the need to carry out research on fundamental variables in computer education such as computer anxiety in Secondary schools in Ekiti State.

The global transformation in the Educational sector and the aftermath of COVID 19 pandemic has opened the eyes of individuals to the need for online teaching/learning in Nigerian Schools. This can only be achieved when both the learners and the teachers are well equipped with the knowledge of ICT. However, it appears that a majority of secondary school students and teachers who are the stakeholders of this development are still lagging behind. Therefore, it becomes imperative to carry-out a study on the evaluation of school type, gender difference and secondary school students' computer anxiety in Ekiti State.

Purpose of the Study

The purpose of the study was to evaluate the relationship between school type, gender difference and secondary school students' computer anxiety in Ekiti State. Specifically, the study examined the computer anxiety of students in public and private secondary schools and also assessed gender differences in the anxiety of secondary school students in Ekiti State.

Evaluation Question

Are students anxious about using computer systems in Secondary Schools in Ekiti State?

Research Hypotheses

The following hypotheses were formulated for the study

1. There is no significant difference in computer anxiety between students in public and private secondary schools
2. There is no significant difference between students' gender and their computer anxiety in Ekiti State secondary schools

Methodology

This study employed descriptive research design of the survey type. The study was on the evaluation of the relationship between school type, gender difference and secondary school students' computer anxiety in Ekiti State. The

population for the study consisted of 33,187 students, as obtained from the Department of Statistics and Planning, Ministry of Education, Science and Technology, Ado Ekiti, Ekiti State. A total of 600 students were selected through multistage sampling procedure as sample for the study. The research instrument used in collecting data for this study was a self-constructed and validated Computer Anxiety Scale (CAS) that contained 20 items that reflect students' computer anxiety. The respondents were asked to indicate how the concept appears to them by making a mark (√) on the appropriate point of the scale on a 2- point continuum: Yes, No. The face and construct validity of the instrument was ensured. Copies of the instrument were given to experts in Tests and Measurement and Computer teachers to ensure the face validity while Confirmatory Factor Analysis of the items was done to confirm the suitability of the items that was used for administration. To ensure the reliability of the instrument; the instrument were administered on 20 students who were not among the sample for the study on two occasions with an interval of two weeks and a reliability coefficient (0.69) of the instrument was obtained using test re-test reliability method. Frequency counts and percentages were used in answering the evaluation questions while t-test was used to analyze the research hypotheses. All the hypotheses were tested at 0.05 level of significance.

Results

Evaluation Question

Are students anxious about using computer systems in Secondary Schools in Ekiti State?

Table 1: Frequency Counts and Percentages of Secondary Schools Students' computer anxiety in Ekiti State

S/N	Items	Yes		No	
		Freq.	Percentage	Freq.	Percentage
1	I feel anxious when getting error messages from the computer	452	75.33	148	24.67
2	I am always nervous whenever I am using computer	326	54.33	274	45.67
3	I am frightened by the presence of computers	317	52.83	283	47.17
4	I tried to avoid using computer whenever possible	211	35.17	389	64.83
5	Computer complexity intimidate me	293	48.83	307	51.17

6	I feel scared while touching a computer	403	67.17	197	32.83
7	The thought of learning about the use of computer scares me	265	44.17	335	55.83
8	I am afraid of taking a test using a computer	439	73.17	161	26.83
9	My heart beat fast whenever I am working on a computer	399	66.50	201	33.50
10	I think something awful might happen whenever I am using the computer	200	33.33	400	66.67
11	I enjoy talking with others about computer	465	77.50	135	22.50
12	I feel confident learning new computer skills	391	65.17	209	34.83
13	I refrain from using computer because I feel it is smarter than me	389	64.83	211	35.17
14	I wish computers are not as important as they are	213	35.50	387	64.50
15	I feel worried about interpreting a complicated computer printout	485	80.83	115	19.17
16	I feel uncomfortable finding myself in a conversation among people who are computer literate	320	53.33	280	46.67
17	If I have to use computer always, I will probably be unhappy	129	21.50	471	78.50
18	Attempting to operate a computer scares me because I might destroy some of its components	226	37.67	374	62.33
19	Just hearing the word computer makes me feel nervous	216	36.00	384	64.00
20	I feel apprehensive about using computer	382	63.67	218	36.33

Table 1 shows the level of anxiety of students on the use of computer system in Ekiti State. 485 (80.83%) of the students said they feel worried about interpreting a complicated computer printout while 465 (77.50%) of them said that they enjoy talking with others about computer. 452 (75.33%) of the students said that they feel anxious when getting error messages from the computer while 439 (73.17%) of the students said that they are afraid of taking a test using a computer. I feel scared while touching a computer, this was the response of 403 (67.17%) of the students while 399 (64.50%) of them said their heart beat fast whenever they are working on a computer. 391 (65.17%) of the students attested to the fact that they feel confident learning new computer skills while 389 (64.83%) of them said that they refrain from using computer because they feel it is smarter than them. I feel apprehensive about using computer, this was the response of 382 (63.67%) of the students as 326 (54.33%) said they were anxious whenever they are using computer. 320 (53.33%) of the students said they feel uncomfortable finding themselves in a conversation among people who are computer literate and 317 (52.83%) of them attested to the fact that they were frightened by the presence of computers. From the table above, it could be said that majority of the secondary school students in Ekiti State are anxious about using computer systems.

Hypotheses Testing

Hypothesis 1: There is no significant difference between computer anxiety of students in public and private secondary schools

Table 2: t-test showing the difference between computer anxiety of students in public and private secondary schools

School	N	Mean	S. D	df	t_{cal}	t_{tab}
Public	460	31.75	13.09	598	7.151*	1.960
Private	140	40.90	13.77			

$p>0.05$ (Significant Result)

Table 2 shows that the t_{-cal} (7.151*) is greater than t_{-tab} (1.960) at 0.05 level of significance; this implies that the null hypothesis is not accepted. Hence, there is a significant difference between computer anxiety of students in public and private secondary schools.

Hypothesis 2: There is no significant difference between students' gender and their computer anxiety in Ekiti State secondary schools

Table 3: t-test showing the difference between students' gender and their computer anxiety in Ekiti State secondary schools

Gender	N	Mean	S. D	df	t_{cal}	t_{tab}
Male	273	33.31	14.09	598	0.891	1.960
Female	327	34.31	13.44			

$p<0.05$ (Result Not Significant)

Table 3 shows that the t_{-cal} (0.891) is less than t_{-tab} (1.960) at 0.05 level of significance; this implies that the null hypothesis is not rejected. Hence, there is no significant difference between students' gender and their computer anxiety in Ekiti State secondary schools.

Discussion

The findings of this study showed that there was a significant difference between computer anxiety of students in public and private secondary schools. This finding is in contrast to the finding of Olatoye (2009) who reported that, in Nigeria, many public and private schools lack enough computer systems to teach and train students. Most research reports and literature review on computer education continue to come from developed countries. This finding however is in agreement to the finding of Umair et al (2021) who concluded that students of public schools have more computer anxiety than the students of private schools

The result of this study also showed that there was no significant difference between students' gender and their computer anxiety in Ekiti State secondary schools. This finding is in contrast to the finding of Schumacher and Morahan-Martin (2001) who stated that the increasing overall computer use in the United States did not diminish gender differences in computer experiences. Their study found that gender differences continually exist among college students. Female college students have higher computer anxiety than male students. They also have more negative attitudes toward computers. This finding also negates the report of Broos (2005) and Arnkoff (2004), who both stated that female students are more anxious about computers than their male counterparts.

Conclusion

It can be concluded that a majority of the students are anxious about the use of computer system in the secondary schools in Ekiti State, most especially in the public secondary schools. Also, there were no discrepancies as to students' gender on the use of computer system in the school

Recommendations

With regard to the findings and conclusions from this study, the following recommendations were made

1. Students need to develop confidence in the use of computer systems in the school
2. Public schools should be well furnished with computer systems and be used to train both the teachers and the students
3. There should be no gender discrimination among the students when it comes to training of the students, using computer system in the schools

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