

An Assessment of Computer Anxiety among Distance Learning Freshmen in South Western Nigeria

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Abstract. Computer anxiety has been identified as a prominent drawback to many freshmen in the Open and Distance Learning (ODL) institutions in Nigeria. It is a known fact that inadequate computer skills coupled with computer anxiety are linked to attrition rate and poor academic performance among distance learners who by exigency should utilise computer to bridge the transactional and interactional distance that exist between them, their facilitators/tutors and other relevant personnel. This is capable of jeopardising learners' adjustment, performance and general coping capacity. The study investigated computer anxiety among distance learning freshmen in the only single mode ODL institution in Nigeria. The study adopted a descriptive design of survey type while the population comprised all fresh students of the National Open University of Nigeria in the South-West geo-political zone of Nigeria. Three research questions guided the study. The simple random sampling technique was used to select three Study Centres of the National Open University of Nigeria in South-West, Nigeria. The convenience sampling method was used to select 400 participants from the selected study centres. Computer Anxiety Rating Scale (CARS) by Heinssen, Glass and Knight (1987) was adopted as the instrument for data collection. The instrument has a test re-test reliability of .79. When subjected to revalidation, the instrument demonstrated high internal consistency with Cronbach alpha of 0.86

and a two-week test-retest reliability coefficient of 0.89. The student t-test was statistical tool utilised to analyse data collected. Findings from the study revealed no significant difference in computer anxiety of participants on the basis of age and gender. However, a significant difference exists between fresh distance learners from science and humanities. Based on the findings, it was recommended that ODL institutions should put up intervention strategies that could be used to combat computer anxiety among distance learning freshmen. Newly admitted students should be screened for computer anxiety/attitude to determine their status. Provision should be made for the computer anxious ones within weeks of resumption to undergo intervention programme that will enhance their computer skills and reduce phobia. Educational and counselling psychologists and service provider should take cognisance of discipline of study in computer appreciation training for open distance learning students.

Keywords: Assessment, Computer anxiety, Distance learning, Freshmen.

1. Introduction

Information and Communication Technology is an integral part of Open and Distance Education system. The National Open University of

Nigeria is not left behind in the integration of computer cum digital resources in the teaching-learning delivery. Shortly after her inception, the University engaged the use of computer in various aspect of its operation such as application, payment procedures and registration. The institution had since graduated from one level to another in the utilisation of computer mediated resources in her service delivery. For instance, the university dumped the pen-on-paper Tutor Marked Assignment (TMA) in favour of online TMA. The success recorded also prompted the adoption of online examination (e-examination) in 2010. At present, the university conducts e-examination for students at 100 and 200 levels for all programmes but Law. However, several computer-mediated tasks that could aid learning like course and examination registration, facilitation (online), Tutor/Computer Marked Assignments (Continuous Assessment), interfacing with facilitators and counsellors, assessing the students' courseware for books, virtual library, etc are dreaded, found to be tasking and herculean for computer anxious learners. The challenge here is the reluctance to use the computer by such computer-phobic learners. This in turn frustrates the speed at which they would achieve their educational goals.

Anxiety is one of the psychological disorders which affect normal life of individuals. Anxiety can manifest in diverse ways in an individual's life. Every human being experiences anxiety with its attendant consequences at one point or the other depending on situations around such individual. It is one of the most widespread and persistent human emotions that affect individuals emotionally, physiologically and cognitively. Anxiety is a major predictor of academic performance and various studies have demonstrated its dangerous effects (McCraty, 2007; McCraty, Dana, Mike, Pam & Stephen, 2000). Anxiety is a common emotional response to involving fear, trepidation and phobia to circumstances, objects and experiences (Akintumi, 2001). This can be devastating when it inhibits performance of tasks that are inevitably important and unevadable.

Computer anxiety is a construct that has lived with many users since its invention. Studies have shown the relatedness of computer anxiety and performance effectiveness among students generally and distance learners specifically (Oluwole, 2009; Wang & Newlin, 2002). Computer anxiety stands to have far-reaching negative effects on distance learners because of high level integration of computer-mediated resources involved in such setting. Computer anxiety is a form of disposition that negatively affects the use of computer or effective performance of computer-related tasks by an individual. Computer anxiety is one of the basic factors affecting computer usage. Chau, Chen, & Wong, (1999) describe computer anxiety as a fear of computers when there is a probability of using computer or while using it. Computer anxiety is the fear and uneasy behaviour expressed by individuals towards computer while using it or when about to use it. It is a kind of reluctant disposition towards the use of computer as a result of imaginary fear (Oyadeyi, 2016).

Many distance learners, particularly those in their first year of study exhibit computer anxiety which constitutes a clog in the wheel of progress in their studies and a serious inhibiting factor to their performance and general achievement. A computer-anxious learner may not cope adequately in the Open and Distance Learning (ODL) environment.

Computer assisted resources are critical tools in Distance education in the contemporary world. Several tasks including course and examination registration, facilitation (online), Tutor/Computer Marked Assignments (Continuous Assessment), counselling, advice and guidance and other learner support services are delivered via the computer. Digital literacy is therefore quitesential to the success of distance learners. In Open and Distance Learning mode, the physical separation that exists between learners and other key stakeholders (facilitators, counsellors, ICT personnel among others is bridged through Information and Communication Technology. Adequate digital skills devoid of anxiety are therefore critical and germane to the success of distance learners.

Studies have shown positive correlation between computer skills and programme completion by distance learners. Conversely, inadequate computer skills and computer anxiety relate positively to attrition rate among distance learners (Ofole, Fawusi & Oduneye, 2012).

It has been observed that computer-phobic distance learners find it difficult to cope and benefit maximally from the online opportunities available in the ODL environment. Such online opportunities include student support services, access to electronic information, virtual libraries hosting a large collection of electronic databases, ebooks, free research publications, learner management system and collaboration with facilitators/lecturers and students (NOUN, 2011). Distance learners' computer anxiety is capable of impeding academic success and general comfort in the pursuit of their studies. Apart from these, it could lead to other things like dropout, lack of interest in studies, failure, and unnecessary physical and emotional stress.

Engaging and retaining students in distance learning could be challenging by the students are transactionally and interactionally distanced from teaching, support staff and other learners despite large number of study centres created by open and distance learning (ODL) institution such as NOUN. Interaction between humans and computers is a complex one. Hakkinen (1994) suggests that this interaction may incite a variety of emotional responses, including anxiety. Anxiety usually occurs when something new is being learned. This causes resistance to change and has negative effects on cognitive performance.

Several studies have shown that age is a factor to reckon with in relation to students' computer anxiety. Older and middle aged adults have shown low self-efficacy with respect to use of computers and higher computer anxiety than the younger adults (Rahimi and Yadollahi, 2011; Dyck & Smither, 1994; Czaja, Charness, Fisk, Nair & Rogers, 2006; Oluwole, 2009). Kelley and Charness (1995) also hypothesized the effect of age on computer performance due to age-related deficiencies, thus causing the need for more time to accomplish tasks. Such older

behaviour computer users (particularly over the age of 65) have less confidence in their ability to use computers than did younger people and had fewer computer skills. This was seen to be partly due to their inability to adapt and use technology, thus placing them at a disadvantage in terms of their ability to successfully perform computer tasks with ease and devoid of anxiety. Researchers have also discovered that the older adult group of men and women (ages between 60 to 91 years old) have more computer anxiety and lower computer efficacy as compared to the younger group. Some studies (Yoon, Jang & Xie, 2015; Cambre & Cook, 1987 and Dyck & Smither, 1994) found that adults were more fearful about using computers than children and teenagers. However, other researchers Reed, Doty, and May, (2005) found no relationship between computer anxiety and age. Hence the moderating role of age on computer anxiety is inconclusive.

Studies on gender and computer are well documented in literature. Brosnan & Lee, (1998) reported that males have more experience and use of computers. Studies have shown that females have more negative attitudes toward computers (Whitely, 1997) and greater computer anxiety (McIlroy, Bunting, Tierney, & Gordon, 2001) than males. Birol, Bekirogullari, Etc, & Dagli, (2008) explored the relationship between gender and computer anxiety, motivation, self-confidence, and the use of computers in a job or career. A significant difference was found between females and males in computer self-confidence, females recording significantly lower scores than males. Male respondents recorded significantly higher scores of self-confidence on this scale than females did, although females and males expressed confidence in accomplishing work using computers. Mean scores for males were higher than female scores for computer anxiety. An examination of computer self-efficacy and computer anxiety of trainee teachers in West Bengal, India by Halder, and Chaudhuri (2011), revealed a significant differences in computer anxiety levels on gender basis. Male trainees had lower computer anxiety than female trainees. Male respondents recorded significantly lower

scores of self-anxiety on computer self-anxiety scale than females did.

In a more recent study by Sanalan (2016), who investigated computerphobia among preservice education majors in a Northeastern University in Turkey, findings indicated that females have significantly more computer fear than their male counterpart. However, Loyd, Loyd, & Gressard (1987) reported that female students had less computer anxiety than male students, and female students liked working with computers more than male students. Rosen, Sears, & Weil (1987) on the other hand, found that gender was not related to computer anxiety, but was significantly related to computer attitudes, with women having more negative attitudes. Similarly, Tuncer, Doğan and Tanas (2013) investigated computer-related anxiety among vocational High School students of Tunceli University. Result shows that gender did not make any meaningful difference for computer anxiety.

Discipline of study has also been identified to have impact on computer anxiety of individuals. Halder and Chaudhuri (2011) found that discipline of study influences computer anxiety of students. Specifically, the study revealed that trainees from the Sciences have significantly greater computer efficacy and lower computer anxiety than those from Humanities. Trainees from the faculty of science were also found to use the internet longer than those from humanities. Contrariwise, Hong (1998) found no significant difference in undergraduates' attitude towards computer and computer anxiety on the basis of faculty background of participants. Similarly, Cazan, Cocorada and Miacan (2016) assessed computer anxiety and attitude towards the computer and internet with Romanian High School and University students. Results indicate that there are no significant differences between the male and the female participants concerning computer anxiety, self-efficacy and the negative attitudes towards the internet. Significant differences between participants enrolled at different education levels and study programs- Science and Humanities. IT&C grades at Science programmes are negatively associated with the level of anxiety.

Computer anxiety is a serious challenge to distance learners in Nigeria. The resultant effects of computer anxiety among distance learners include avoidance of computer by learners, the use of third party to submit Tutor Marked Assignment (TMA), test anxiety, loss of time during e-examination, procrastination in attempting computer-related tasks including assessing e-books, use of e-counselling portal, i-learn portal (despite their numerous advantages and inevitability), not taking advantage of the Open Education Resources (OERs), Massive Open Online Courses (MOOCs) and incessant deferment of examination. Many ODL freshmen in Nigeria usually receive what could be described as computer shock at the beginning of their studies due to their level of unpreparedness for the utilization of computer in most of their activities. Some of these freshmen saw the phenomenon as forceful initiation into a different world.

In view of this, the study investigated computer anxiety among distance learning freshmen in South West, Nigeria.

The main purpose of this study was to assess computer anxiety among distance learning freshmen in South West, Nigeria. The following three hypotheses guided the study.

Hypotheses 1: There is no significant difference in computer anxiety of distance learning freshmen on the basis of age.

Hypothesis 2: There is no significant difference in computer anxiety of male and female distance learning freshmen.

Hypothesis 3: There is no significant difference in computer anxiety of distance learning freshmen on the basis of discipline/faculty.

2. Methodology

2.1 Research Design

The study adopted a descriptive design of survey type.

2.2 Population

The population of the study comprised all fresh students of the National Open University of

Nigeria in the South-West geo-political zone of Nigeria.

2.3 Sample and Sampling Techniques

The simple random sampling technique was used to select three Study Centres of the National Open University of Nigeria in South-West, Nigeria. The convenience sampling method was used to select 400 participants comprising 200, 100 and 100 respondents from Lagos, Ibadan and Akure study centres respectively.

2.4 Instrumentation

Computer Anxiety Rating Scale (CARS) by Heinssen, Glass and Knight (1987).

The Computer Anxiety Rating Scales (CARS) is a 19 items self-report inventory, designed and validated by Heinssen, Glass and Knight, (1987). The subjects responded on a five-point Likert type scale (1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree). Total scores ranged from 19, indicating a low level of computer anxiety, to

95, which would indicate a high degree of computer anxiety. The instrument has a test re-test reliability of .79. When subjected to revalidation, the instrument demonstrated high internal consistency with Cronbach alpha of 0.86 and a two-week test-retest reliability coefficient of 0.89.

2.5 Procedure

The instrument was administered by the researcher who was assisted by two research assistants. Out of the 400 questionnaire administered, 371 were retrieved. However, only 358 of the retrieved copies were valid.

2.6 Data Analysis

The student t-test was statistical tool utilised to analyse data collected.

3. Results and Discussion

Hypotheses 1: There is no significant difference in computer anxiety of distance learning freshmen on the basis of age.

Age and Anxiety

	N	Mean	Std. Deviation	Std. Error	T	Sig	Remark
Young	232	88.7241	12.07594	.79282			
Old	126	86.9524	13.58226	1.21000	1.608	.206	NS
Total	358	88.1006	12.63608	.66784			

There was no significant difference in the computer anxiety of old and young students ($t=7.375$, $p<0.05$).

The summaries of the analysis are presented in Table 1.

This hypothesis states that there is no significant difference in computer anxiety of distance learning freshmen on the basis of age is hereby accepted.

The finding of this study corroborates that of Reed, Doty, & May, (2005) found no relationship between computer anxiety and age. However, the finding contradicts that of Dyck and Smither (1994) who found that a significant difference between age and levels of computer anxiety. The finding of this study also negates some studies (Czaja et al., 2006; Maurer, 2001; Czaja and Sharit, 1998; Czaja, Charness, Fisk, Nair & Rogers, 2006 and Oluwole, 2009) which indicated differences between older/ middle-aged adults and young adults with respect to computer anxiety.

Hypothesis 2: There is no significant difference in computer anxiety of male and female distance learning freshmen.

Gender and Anxiety

	N	Mean	Std. Deviation	Std. Error	t	Sig.	Remark
Male	195	88.2256	12.95235	.92754	.042	.838	NS
Female	163	87.9509	12.28509	.96224			
Total	358	88.1006	12.63608	.66784			

There was no significant difference in the computer anxiety of male and female students ($t=.042$, $p>0.05$). This hypothesis states that there is no significant difference in the computer anxiety of male and female freshmen is hereby retained. The finding of this study agrees with numerous some studies that revealed no significant gender difference and computer anxiety (Howard and Smith, 1986; Igbaria and Parasuraman, 1989 and Cazan, Cocorada and Miacan (2016). The finding was also affirmed by studies of Chao (2001), and Sam, Othman, and Nordin (2005) which found no significant difference on gender basis and computer anxiety. The finding further corroborated that of Adebowale, Adediwura, and Bada, (2009) and Karsten and Roth (1998) whose studies showed no gender difference in computer anxiety of students. The work of Johnson and Wardlow, (2004) and Rosen, Sears, & Weil (1987) also found no significant differences in computer anxiety on the basis of gender.

The finding could be attributed to the fact that computer anxiety is a psychological imbalance that affects individuals irrespective of gender.

On the other hands, the finding of this study contradicts various studies (Broos, 2005; Brosnan, 1998; Chua, Chen, & Wong, 1999; Schottenbauer, Rodriguez, Glass, and Arnkoff, 2004) who found that computer usage at school was dominated by male participants and that female participants showed higher anxiety than their male counterparts. The finding also contrasts those of Schumacher and Morahan-Martin (2001) who found gender differences continually exist among college students' computer anxiety. Durndell and Haag (2002) also reported similar finding that male students experienced lower computer anxiety than females. Still in contrast with the finding, Halder and Chaudhuri (2011) in a study of secondary school teacher trainees found gender difference in relation to computer anxiety and that male trainees had higher computer anxiety and lower computer anxiety than female trainees. Brosnan & Lee (1998) also found that males were more computer anxious than females in their study.

Hypothesis 3: There is no significant difference in computer anxiety of distance learning freshmen on the basis of faculty/discipline.

Faculty/Discipline and Anxiety

	N	Mean	Std. Deviation	Std. Error	t	Sig.	Remark
Science	173	89.9595	13.03455	.99100	7.375	.007	S
Humanity	185	86.3622	12.02866	.88437			
Total	358	88.1006	12.63608	.66784			

There was significant difference in the computer anxiety of science and humanity students ($t=7.375$, $p<0.05$). The mean score surprisingly showed that science students had higher computer anxiety than their counterpart in humanity. This finding corroborates that of Halder and Chaudhuri (2011) which found that discipline of study influences computer anxiety of students. Specifically, the study revealed that trainees from the Faculty of Science have significantly greater computer efficacy and

lower computer anxiety than those from Humanities. Trainees from the faculty of science were also found to use the internet longer than those from humanities. Contrariwise, Hong (1998), Cazan, Cocorada and Miacan (2016) found no significant difference in undergraduates' attitude towards computer and computer anxiety.

4. Recommendations

Freshers in the Open and Distance Learning (ODL) institutions are faced with many challenges of which computer anxiety is prominent. Many of these learners are facing the reality of utilising computer as a tool or resource for their studies as against their orientation in their previous schools. The following recommendations are given based on the findings of this study.

- There is need put up intervention strategies that could be used to combat computer anxiety among distance learning freshmen.
- Newly admitted students should be screened for computer anxiety/attitude to determine their status. The university should make provision for the computer anxious ones within weeks of resumption to undergo intervention programme that will enhance their computer skills and reduce phobia.
- Counsellors, ICT personnel and other NOUN staff should encourage computer anxious learners noting that their students are at different levels of computer literacy and competence.
- Computer anxious learners should avail themselves for and CBT since the strategy had been found to be efficacious in managing computer anxiety.
- All NOUN study centre should be equiped with computer centres where learners could easily interact with computer and also observe others using computer freely since many of them do not own personal computers.

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