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Levels of participation in ICT training programmes, computer anxiety and ICT utilization among selected professionals

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ABSTRACT

Information and Communication Technology (ICT) no doubt has improved the quality of life in the modern world and it is widely used by many professionals in carrying out their daily activities. Many organizations invest so much in training their workers on ICT applications. It is expected that training programmes will reduce computer anxiety and improve workers' ICT utilization and productivity. This study therefore assessed the levels of participation in ICT training programmes, computer anxiety and ICT utilization among professionals in Ogun State Nigeria. The relationships among these variables were also investigated. A stratified random sample technique was used to select four hundred and seventy seven respondents from four different professions in Ogun State, Nigeria namely teaching, broadcasting, medical and banking. Bank workers use ICT most and are also least anxious about computers. There is a significant positive relationship between levels of participation in ICT programmes and computer utilization ($r=+0.755$, $p<0.05$). Organisations should do more to invest in ICT training so as to enhance productivity.

Keywords: *Computer anxiety, ICT training, computer utilization, professionals, broadcasting, ICT utilization.*

INTRODUCTION

Information and Communication Technology (ICT) refers to the totality of methods and tools that are used in gathering, storing, processing and communicating information. ICT has found application in virtually all the available professions in the world. Professionals in different fields called it by different names. When ICT is used in education or to foster learning, it is called E-learning Technology or Educational Technology. In the broadcasting profession where ICT is used as a communication tool, it is commonly referred to as Electronics Information Technology or just Communication Technology. A careful consideration of the meaning and scope of ICT makes it easy to think that hardly can any profession survive or continue to be relevant without the integration of ICT. ICT encompasses all the technologies used to transmit or disseminate information to an audience. These cover internet services provision, telecommunications equipment and services, media and broadcasting and other related information and communication activities. Modern ICT products include e-mail, voice mail, FAX, internet, electronic bulletin boards, cellular phones, videoconferencing among others.

In the banking industry, ICT is used in the operation of Automated Teller Machine (ATM) and on-line money transfer among others. ICT, which has revolutionized banking operation in the world, is widely used for accounting, information and communication purposes. In health care delivery system, Computer-Assisted Instruction and ICT have been used to foster patients' ability to acquire early skills in intra oral radiography (Howerton, Platin, Lndlow & Tyndall, 2002, p.1157). Many medical facilities used in modern hospitals rely so much on ICT.

In the teaching profession, distance education programme is now accepted world-wide as a standard alternatives mode of education due to the use of ICT (Ojokheta &Adepoju, 2007, p.288).

ICT improves instruction and more learners can be catered for. For example, Distance Education University in China has an enrolment of 1,000,000 students (Ogunsheye, 2000). In health and broadcasting sectors ICT has been used to provide information with the aim of bringing about social transformation. In Tanzania, for example, *Twende na Wakat* (Let's Go with Time) radio broadcast was aimed at stepping down population growth and combating HIV/AIDS infections. A survey showed that 55% of Tanzanians listened to it (Yahaya, 2003, p.10). Rogers cited by Yahaya (2003, p. 10) reported that the serial had strong effect, with 23.0% of listeners reporting adoption of family planning and 82.0% reporting a method of HIV prevention. Most listeners changed to monogamous sexual relationship, while others adopted condoms or stopped sharing razors or needles.

The benefit of ICT is overwhelming. According to Federal Ministry Science and Technology (2001), ICT is recognized globally as the bedrock for national survival and development in a rapidly changing global environment. ICT is central to any economy and to people quality of life in any society. It drives many of today's innovation and will still likely be very relevant in the coming decades. This section of technological development seems to crown all the technological advancement so far made. It has affected human development in no small measures because ICT has been integrated into the modes of operation of different professional practices.

All professionals need ICT to improve their effectiveness and impact on the populace. Generally, ICT enables effective fast storing/sorting and transmitting of information, reduction of information quantity and improving strategies for professional operations with high degree of reliability. While it may not be possible to consider all professions in a single study like this, this study therefore carefully considered four professions that have impact on most people daily activities. These professions are Broadcasting, Teaching, Medical and Banking.

Adedoyin (2008, pp.15,16) identified some problems associated with the use of ICT in Nigeria as high incidence of poverty, poor funding by the governments, lack of knowledge and expertise in the use of the new technology and poor condition of infrastructure especially electricity. Also, Farrel and Shafika (2007, p.10) highlighted other challenges facing ICT operations in Africa. These are poor electricity supply, lack of ICT equipment, overcrowding of computer laboratories, and lack of affordable access to connectivity with acceptable bandwidth, lack of local digital content especially in term of language, cost of maintaining equipment, staff training, shortage of skills and general dependence on donors for the implementation of policy.

Another problem identified with computer utilization in literature is computer anxiety. Anxiety by definition is intense dread, fear, apprehension or nagging worry. Computer anxiety as defined by Howard and Smith (1986, p.612) as the fear of impending interaction with a computer that is disproportionate to the actual threat presented by the computer. Those who are computer anxious may experience fear of the unknown, feeling of frustration and possible embarrassment, failure and disappointment (Fajou, 1997, p. 99). Computer anxious users may not necessarily benefit from the increase computer use by the populace. There seems not to be agreement in literature on how experience influence computer anxiety. While Necessary and Parish (1996, p. 285) reported that increasing computer experience will decrease computer anxiety. Glass and Knight (1998, p.364) asserted that the relationship between computer anxiety and experience is only with the users' first encounter with computer after which the users become less anxious. Kian and Chee (2002. p.35) found that people with high computer experience are found to have more positive attitude toward computer and lower computer anxiety. Studies on computer anxiety is necessary as research reports have shown that computer anxiety makes users to avoid computers and computer anxiety is a phobic condition that is amenable to change (Wilson, 1999, p. 450; Olatoye 2009, p. 2431).

In Nigeria, many authors have cited shortages of required skill as one of the hindrances to ICT utilization (Adedoyin 2008, pp.16-20; Farrel & Shafika, 2007.p 10). One of the ways to address these challenges is to encourage staff training and development especially in ICT usage. When such training and development programmes are organized, it is important to measure their impact on achievement of desired goal in an organization. Any training programme should eventually show a positive notion and improve the bottom line. In order to make training meaningful, Hearthfield (2004, p.2) suggested that employees should attended internal and external seminars. The employees should perform the tasks they were performing before they attended the seminars to be able to find out if the skills acquired during training have been transferred to their jobs. When the employees attended an external seminars, they should be asked to train other employees so that the information, knowledge and skilled acquired at such seminars can be passed to other employees who did not attend.

Many organizations invest so much in training their workers on ICT applications. It is expected that training programmes will reduce computer anxiety and improve workers' ICT utilization. This study therefore assessed the levels of participation in ICT training programmes, computer anxiety and ICT utilization among professionals in Ogun State Nigeria.

RESEARCH QUESTIONS

The following are the formulated research questions for this study:

1. What are the Mean Scores of ICT Training, Computer Anxiety and ICT Utilization among Professionals?
2. What is the combined influence of levels of participation in ICT training and computer anxiety on professionals' ICT utilization?
3. What is the relationship between each of the independent variables (levels of ICT training and computer anxiety) and the dependent variable (ICT utilization) among professionals?
4. Is there any significant difference between male and female professionals' (i) ICT training level (ii) Computer Anxiety and (iii) ICT utilization?

METHODOLOGY

Research Design

Research design is a plan or blue print which specifies how data relating to a given problem should be collected and analyzed. Research design that was applied in this study is *ex-post facto*, which is a form of systematic empirical inquiry in which the researcher does not have direct control of the independent variables. They are assumed to have already occurred.

Population, Sample and Sampling Techniques

The target population of this study consists of all professionals in the banking, teaching, broadcasting and medical professions in Ogun State, Nigeria. One hundred and twenty professionals were chosen from each of the identified professions. Stratified random sampling was used to select the professionals from the four major zones of Ogun State namely Egba, Ijebu, Remo and Yewa. Within each zone, thirty respondents were selected from each profession to get a sample size of one hundred and twenty for a zone. Out of the four hundred and eighty questionnaires administered; only four hundred and seventy seven respondents completed and returned the questionnaires. Thus the sample size for the study is 477. The average age of the respondents is 36.7 years. The female and male respondents were 234 and 243 respectively.

Instrumentation

Three questionnaires were used in this research. They are Level of Participation in Training Questionnaire (LPTQ), Computer Anxiety Questionnaire (CAQ), and ICT Utilization Questionnaire (IUQ)

Level of Participation in Training Questionnaire (LPTQ)
This questionnaire was divided into two sections. Section A was on personal information about the respondents such as Local Government Area, name of school, class, type of school, sex and age. Section B was on Level of Participation in Training.

Table 1: Level of Participation in Training Questionnaire (LPTQ)

S/N	**STATEMENTS**	Very Regular	Regular	Sometimes	Never
1.	ICT workshops and seminars in Nigeria				
2.	ICT workshops and seminars outside Nigeria				
3.	ICT workshops and seminars in your place of work				
4.	ICT training workshops and seminar by professional colleague				
5.	Refreshers course on ICT				
6.	ICT workshops and seminars				

Computer Anxiety Questionnaire (CAQ),
It contained 20 items which sought information on computer anxiety. A four-point Likert-type scale was used in this section. For each item, respondents were asked to tick the column that matches their feelings. The options are: SA = Strongly Agree, A = Agree, D = Disagree, and SD = Strongly Disagree.

Table 2: Examples of items on Computer Anxiety Questionnaire (CAQ)

	Item	SA	A	D	SD
1.	I fear computer can cause electric shock				
2.	I get confused while operating computer.				
3.	I am afraid Computer virus can affect human beings				
4.	Computer is too troublesome especially when it comes to connecting the various components.				
5.	I always get scared with computer				
6.	I do not feel at ease when it comes to inserting tables, graphs, photographs in documents.				

ICT Utilization Questionnaire (IUQ)
IUQ comprised 22 items of which the respondents were to indicate how frequently they carry out listed operations using computer. It was a four-point scale with the following options to the items: Very Regularly, Regularly, Sometimes and Never

Table 3: Examples of items on ICT Utilization Questionnaire (IUQ)

S/N	**STATEMENTS**	Very Regular	Regular	Sometimes	Never
1.	Telephone and internet banking				
2.	Cash-point machine				
3.	Debit cards				

4.	Credit cards to make phone, internet purchase, etc.				
5.	Sending money online				
6.	Smart card				
7.	Sending of e-mail				
8.	Mobile phone cells				
9.	Browsing for educational materials				
10.	Teleconferencing				
11.	Video conferencing				
12.	On-line course				

The initial versions of the instruments were given to experts for suggestions and comments before coming up with the final versions. The Cronbach alpha reliability co-efficients of 0.789, 0.711and 0.754 were obtained for LPTQ, CAQ and IUQ respectively.

Procedure for Data Collection

The instruments were administered by the researcher and his assistants to the respondents in selected organizations (hospitals, broadcasting houses, schools and banks) and collected back within one week. In administering the instruments necessary precautions were taken by the researcher and his assistants to erase any form of anxiety or subjectivity on the part of the respondents. The respondents were assured utmost confidentiality. Respondents were given ample time to read through the information while the researcher was available to clarify any necessary issues.

Method of Data Analysis

Data collected were analyzed using regression analysis, t-test and Pearson product-moment correlation. Means and graphs were used to provide answer to research question one, regression analysis was used to provide answer to research question two, Pearson product-moment correlation was used to answer research question three while student t-test was used to answer research question. All research questions were answered at 0.05 level of confidence using a two-tailed test.

RESULTS

Research Question 1: What are the Mean Scores of ICT Training, Computer Anxiety and ICT Utilisation among Professionals?

Table 4: Mean Scores of ICT Training, Computer Anxiety and ICT Utilisation among Professionals

Profession	N	ICT Training	Computer Anxiety	ICT Utilisation
Medical	120	6.225	43.425	39.200
Teaching	120	8.475	41.175	44.051
Broadcasting	120	11.100	42.025	52.925
Banking	120	12.750	38.150	59.100

N= 480

In table 4, the levels of ICT training and ICT Utilisation are highest for bankers and lowest for the medical profession. The level of computer anxiety is highest for the medical professionals and

lowest for bankers. There is an almost inverse relationship between computer anxiety and ICT utilization. The data in the table are presented as graphs in the figures below.

Figure 1: Level of ICT Training among Professionals

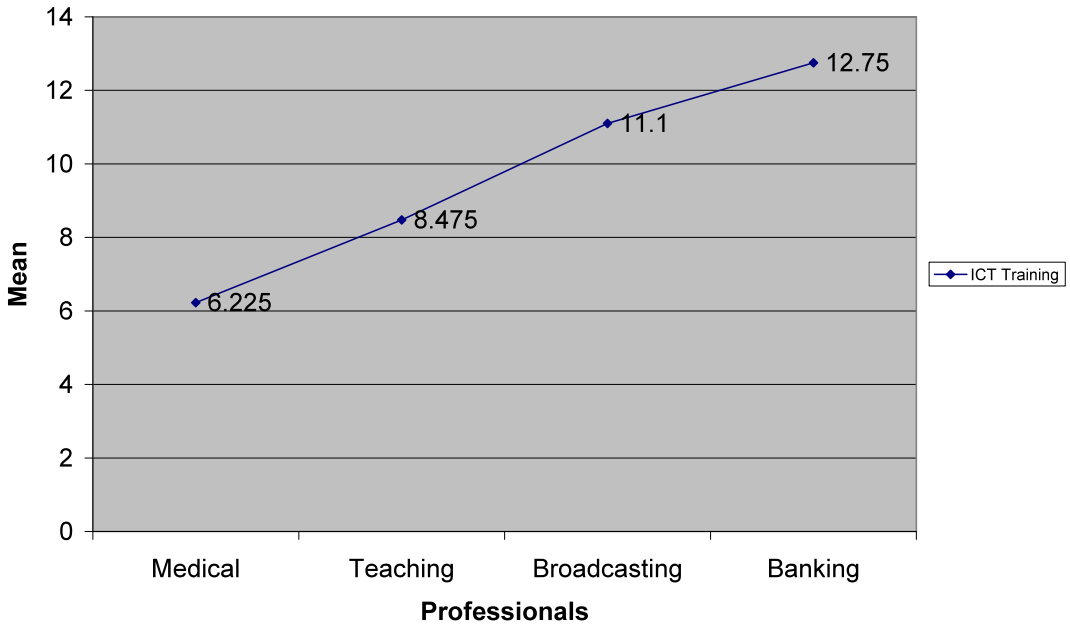


Figure 2: Level of Computer Anxiety among Professionals

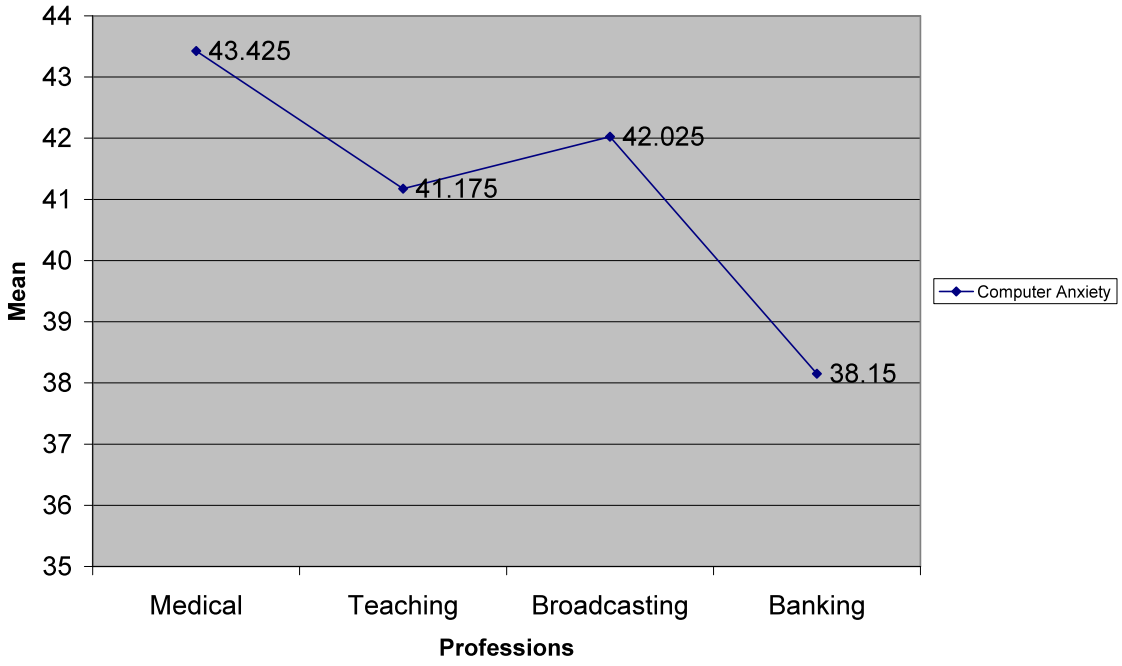
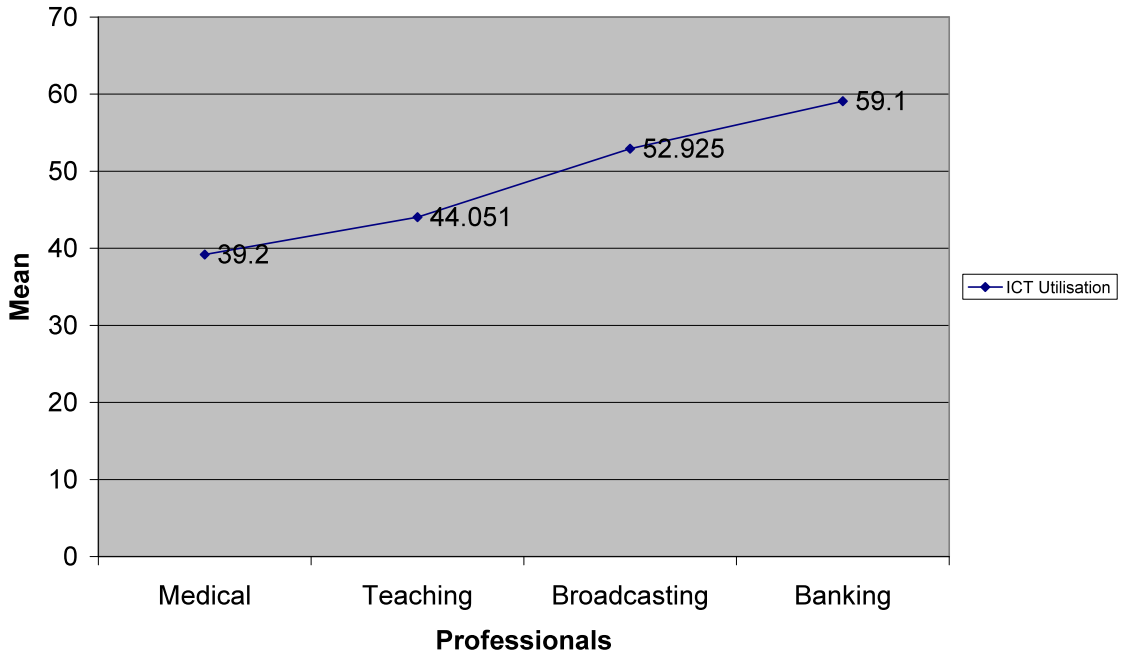


Figure 3:Level of ICT Utilisation among Professionals



Research Question 2: What is the combined influence of levels of participation in ICT training and computer anxiety on professionals' ICT utilization?

Table 5: *Levels of participation in ICT training and computer anxiety as predictors of professionals' ICT utilization*

	R=0.757 R. Square = 0.574 Adjusted R. Square = 0.572 Std. Error = 7.891					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**	**Remark**
Regression	39693.285	2	19846.642	318.699	0.000	Significant (P<0.05)
Residual	29517.847	474	62.274			
Total	69211.132	476				

Table 5 above shows that level of participation in ICT training and computer anxiety when taken together significantly predict ICT utilization (F = 318.699; P< 0.05). The regression model also reveals that levels of participation in ICT training and computer anxiety jointly contributed 57.4% to the variance in ICT utilization among professionals (R^2 =.079, p<0.05). Levels of participation in ICT training and computer anxiety are therefore important factors that can enhance ICT utilization.

Research Question 3: What is the relationship between each of the independent variables (level of ICT training and computer anxiety) and the dependent variable (ICT utilization)?

Table 6: Relationship between each of the independent variables (level of ICT training and computer anxiety) and the dependent variable (ICT utilization)

		ICT training	Computer Anxiety	ICT Utilization
ICT training	Pearson Correlation	1.000	.	
	Sig. (2-tailed)			
	N	477		
Computer Anxiety	Pearson Correlation	0.176*	1.000	
	Sig. (2-tailed)	0.397		
	N	477	477	
ICT utilization	Pearson Correlation	0.755*	-.230*	1.000
	Sig. (2-tailed)	0.000	.000	
	N	477	477	477

*Correlation is significant at the 0.05 level (2-tailed).

In table 6, there is a significant negative relationship between computer anxiety and ICT utilization. ($r = -0.230$, $P<0.05$) Thus, the higher the computer anxiety, the lower the ICT utilization. Conversely, the lower the computer anxiety, the higher the ICT utilization. There is a significant positive relationship between ICT training and utilization ($r = +0.755$, $P<0.05$). Therefore, the higher the level of ICT training and the higher the ICT utilization.

Research Question 4: Is there any significant difference between male and female professionals' (i) ICT training level (ii) Computer Anxiety and (iii) ICT utilization?

Table 7: Comparison of male and female professionals' ICT training level, Computer Anxiety and ICT utilization

	Gender	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Df**	**t**	P	**Remark**
ICT training	Female	243	9.3704	3.34186	0.21438	475	-1.785	0.075	Not Significant
	Male	234	9.9487	3.72866	0.24375				
Computer Anxiety	Female	243	39.3951	8.74952	0.56128	475	-3.969	0.000	Significant
	Male	234	42.9103	10.54138	0.68911				
ICT utilization	Female	243	47.6296	11.18674	.71763	472	-2.533	0.012	Significant
	Male	231	50.4026	12.63253	.83116				

In table 7, there is no significant difference between male and female professionals in level of ICT training ($t=-1.786$, $p>0.05$). However, female professionals have higher computer anxiety ($t=-3.969$, $p<0.05$), though they use computer more frequently than their male counterparts ($t=-2.533$, $p<0.05$).

DISCUSSION OF FINDINGS

In this study, the levels of ICT training and ICT Utilisation are highest for bankers and lowest for the medical professionals. The level of computer anxiety is highest for the medical professionals and lowest for bankers. One of the professions where employees will be entirely rendered redundant without ICT knowledge is banking. In the banking industry, ICT is used in the operation

of Automated Teller Machine (ATM) and on-line money transfer among others. ICT, which has revolutionized banking operation in the world, is widely used for accounting, information and communication purposes.

Also, this study reveals that there is a significant positive relationship between ICT training and utilization. Therefore, the higher the level of ICT training, the higher the ICT utilization. As a result of ICT training, computer knowledge will increase. Olatoye (2009, p.2440) reported a high significant relationship between computer knowledge and utilization. Therefore, it is necessary for ICT users to improve their knowledge because of new challenges that constantly come up in ICT operations. It is necessary for organizations to train their professionals to make them current and up to the task of using latest ICT facilities. Hearthfield (2004, p.11) noted that training and development of professionals increase employee motivation, retention and development of career- enhancing skills. Owodunmi (2002. p.7) asserted that the quality of human resource of any organization determines its success. Workers' training determine the so called quality and such constant training of workers is a determining factors in the attainment of required skills for better job placement and manpower development in organizations.

In this study, there is no significant difference between male and female professionals in level of ICT training. However, female professionals have higher computer anxiety, though they use computer more frequently than their male counterparts. There are conflicting findings in literature. Males are less anxious and highly confident about using computers (Broos, 2005, p 29). Females are less anxious than males (King, Bond and Blandford, 2002). Female pre-service teachers have higher anxiety level than their female counterparts. Male students have more positive attitude toward, ICT (Broos, 2005, p.29), greater computer experience and interaction with computer (Tella & Mutula, 2008, p.72) and higher interest in ICT (Okebukola & Woda, 1993, p. 180). Yuen and Ma (2002, p.379) reported no significant difference between male and female undergraduate trainee teachers' attitude toward computer. Agbatogun (2009, p.2500) reported significantly higher level of ICT literacy for male in-service teachers. Similarly, Olatoye (2009, p.2440) reported significantly higher computer utilization among male than female students, he also reported no significant difference in computer anxiety.

CONCLUSION AND RECOMMENDATIONS

ICT is important in enhancing the quality of life and economic development of any nation. Effective utilization of ICT by different professionals will no doubt increase the level of production in work organizations. Computer anxiety is a negative psychological construct that does not in anyway enhance ICT utilisation. Level of computer training however has a positive relationship with computer utilization. Thus for Nigerian government to realise the Millennium Development Goals and improve computer literacy level, there is need to deliberately encourage computer training, sensitise every literate citizen on applications of computers so that they will appreciate computers and therefore get motivated to use them. Computer instructors need to disabuse the mind of students and all computer learners on all they have erroneously believed about computers. The computer educators should also emphasise the flexibility and wide applications of computers and availability of user-friendly computer training software manuals. Also, organizations, both publicly– and privately – owned should provide computer systems for their employees. Adequate training in the use of computer tools should be stressed in the university curricula so that graduates of different programmes will be computer literate.

REFERENCES

Adedoyin, F. S. 2008. "ICT in the development and sustainability of Nigerian Educational System". In: K.A. Alebiosu (Ed). *Development and Sustainability in Nigerian Educational System.* 2nd National Conference Proceedings of Institution of Education Olabisi Onbanjo University, Ago-Iwoye, Ogun State.

Agbatogun, A.O. 2009. "Gender Diversity and ICT Literacy among Nigerian In-Service Teachers". *Gender and Behaviour,* vol. 7, no. 2, pp. 2485-2503.

Broos, M. A. 2005. "Gender and Information Technology and Communication Technology (ICT) anxiety: Male self assurance and female hesitation". *Cyber Psychology and Behaviour,* vol. 8, no.1, pp. 21-31.

Fajou, S. 1997. "Computer Anxiety." *Journal of Education Computing Research,* vol. 17, no. 4, pp.90-101.

Farrel, G. & Shakifa, I. 2007. "Survey of ICT and Education in Africa: A Summary Report Based on 53 Country Surveys". Washington, D.C. :InfoDev/ WorldBank
Available at: http://www.infodev.org/en/publication.353.html

Federal Ministry of Science and Technology. 2001. *National Policy in Information and Technology,* Abuja: FMST Press.

Glass, C. R. & Knight, L. A. 1998. Cognitive factors in computer anxiety, *Cognitive Therapy and Research,* vol.12, pp. 351-365.

Hearthfield S.M. 2004. "Training and Development for Employee Motivation and Retention. Guide to Human Resources, Free Newsletter accesses on November 25th, 2004". Available at http://humanresources.about.com/od/training/a/training_dev.htm

Howard, G.S. & Smith, R. D. 1986. "Computer Anxiety in Management: Myth or Reality?" *Communication of the ACM,* vol. 29, pp. 611-615.

Howerton, W. B., Platin, E., Lndlow, J. & Tyndall, D. A. 2002. "The Influence of Computer-Assisted Instruction on acquiring Early Skills in Intra oral Radiography". *Journal of Dental Education, vol.* 66, no.10, pp.1154-1158.

Kian, S. H. & Chee, K. K. 2002. "Computer anxiety and attitudes toward Computers among rural secondary school teachers: A Malaysian perspective". *Journal of Research on Technology in Education,* vol. 35, no.1, pp.27-48.

King, J., Bond T. & Blandford, S. 2002. "An investigation of computer anxiety by gender and grade." *Computers in Human Behaviour,* vol. 18, pp. 69-84.

Necessary, T.R. & Parish, T. H. 1996. The relationship between Computer Usage and Computer – related Attitudes and Behaviours, *Education,* vol.116, no.3, pp.384-387.

Ogunsheye, F.A. 2000. "Prospects for Knowledge and Information transfer managers in Nigeria in the new Millennium". In: O. Oyedele – Bamisaiye I. A. Nwazuoke & A. Okediran (Eds) *Education this Millennium: Innovations in Theory and Practice,* Ibadan: Macmillian

Ojokheta, K. O. & Adepoju, T. 2007. Two-way Communication Concept and Implication for Interaction and Collaborative Learning in distance education, *Ibadan Journal of Education Studies,* vol.2 no.1, pp. 287-494.

Okebukola, P.A.O & Woda A.B. 1993. "The gender factor in Computer anxiety and interest among some Australian high school students". *Educational Research,* vol. 35, no.2, pp.181-189.

Olatoye. R. A. 2009. Gender factor in Computer anxiety, knowledge and utilization among Senior Secondary School Students in Osun State, Nigeria. *Gender and Behaviour,* vol.7, no.2, pp.2430-2442.

Owodunni, A. A. 2002. Effects of Direct Attention Thinking Tools and Brain Writing Creativity Technique on Business Process Re-engineering Skills if Customers Service bank workers in Ibadan. *Unpublished PhD Thesis,* University of Ibadan, Nigeria.

Tella, A., & Mutula, S.M. 2008. "Gender differences in Computer Literacy among undergraduate students at the University of Botswana: Implication for Library use". *Malaysian Journal of Library and Information Science,* vol.13, no.1, pp. 59-76.

.

Wilson, B. 1999. Redressing the anxiety in balance: computer phobia and educators, *Behaviour and Information Technology,* vol.18, no.6, pp. 445-453.

Yahaya, M.K. 2003. *Development Communication. Lessons from change and social Engineering Projects.* Lagos: Corporate Graphics Ltd.

Yuen, A.H.K. & Ma, W.W.K. 2002. Gender differences in teacher computer acceptance, *Journal of Technology and Teacher Education,* vol.10, no.3, pp.365-382.

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