The Effect of Gender on Computer Practical Skills Acquisition for Societal Development

Afeez Alani Jimoh[1], Yusuf Kazeem Adegboye[2], Monsuru Ibikunle Folorunso[3], Munir Ayinde Ibrahim[4] & Ologunde, S.A. [5]

[1]Department of Computer Science Education, School of Secondary Education (Science), Aminu Saleh College of Education, P.M.B. 044, Azare, Bauchi State, Nigeria.
[2]Department of Computer Science, School of Applied Sciences, Federal Polytechnic, P.M.B. 001, Nasarawa, Nasarawa State, Nigeria.
[3]Department of Computer Science, Nasarawa State Polytechnic, Lafia, Nasarawa State, Nigeria.
[4]Department of Computer Science, School of Applied Sciences, Federal Polytechnic, Offa, Kwara State, Nigeria
&
[5] Federal Government College, Ikirun, Ifelodun LGA, Osun State.

**Corresponding author's Email: jimohafeezalani@yahoo.com

Abstract

In Nigeria today, the unemployment rate is alarming and Nigerian government is making tremendous efforts in reducing this joblessness phenomenon among the citizens through different schemes and programmes. Computer as a skill acquisition tool can also be used to develop citizens economically if required skills are acquired. This paper looked at the effect of gender on computer practical skills acquisition for societal development. The data used for the study is secondary and was collected from Computer Centre of Aminu Saleh College of Education, Azare, Bauchi State. Purposive sampling technique was used to select five different sets of certificate in computer operation, out of about twenty trained sets. Data used for the study were generated from five different sets selected for the study; consisting of 460 students (150 females and 310 males). The data was analyzed using mean and standard deviation to answer all research questions, while t-test statistics at p=0.05 significance level was used to test all three hypotheses. The results showed that males acquired skills in Microsoft Word program better than females and there was significant difference statistically in both males and females acquired skills in Microsoft Word. There was no significant difference statistically in males and females skill acquisition in Microsoft Excel. However, female students performed better in CorelDraw skills acquisition than the males and the difference was statistically significant. The study proffered some recommendations, such as; soft loan should be made available by government to enable learners stand on their own by providing computer services to people, thereby serving as means of self-reliant and thereby reduce the unemployment rate in the society.

Keywords: Gender, Computer Practical, Skill Acquisition, Society, Development.

I. Introduction

The rate of unemployment in Nigeria is alarming and government at all levels is making tremendous efforts to combat it. Computer as one of the tools for skill acquisition can reduce drastically this rate of joblessness in the society if the potential skills in it are well-harnessed by the citizens. It has been established that skill acquisition in ICT can improve the economic development of a nation and computer as one of such tools has the potential. For instance, in the words of Okwuonu (2010), ICT has helped greatly to improve the

lots of people across the world. He further stated that in Nigeria, thousands of youths have been pulled out of poverty due to the usefulness of ICT. Besides, Ndukwe (2007) observed that to herald the next phase of the nation's ICT evolution, emphasis shall be placed on "ICT for Economic Growth Policy", such a policy must be able to foster the improvement of the following key elements, creation of hundreds of thousands of new ICT-related jobs, new employment opportunities in software and network engineering, and cascading effect of income earned in newly created ICT-related jobs.

Skill, according to Microsoft Encarta (2009), is the ability to do something well, usually gained through training or experience. Thus, skill acquisition is the ability to be well-grounded, knowledgeable in a particular field through training and experience. Ability to acquire skills and experience in computing nowadays among the teaming youths is very important. This would create jobs for these youths if they are properly trained.

To be well grounded in computer usage and be proficient, there is need for computer practical class that will enable the learners gain experience through training and re-training. Computer practical is the use of computer to do some tasks following laid down guidelines on how to accomplish such task by the learner. For instance, a learner who wants to plot a graph in Microsoft Excel has to follow the step by step procedures (guidelines) on how to accomplish the graph. With these computer practical skills, learners will be proficient in the use of computer to do certain operations.

According to Hashim & Mustapha (2004); Cardel & Nickel (2003) as reported in Agbatogun (2009), Computer proficiency is essential for success in academic pursuit, and the labour- market, hence, it is valued by employers because it is assumed that graduates must have possessed the minimum level of computer skills that would enhance performance and productivity. Based on this reason, introductory course in computer is becoming mandatory for students in developing and developed countries so as to enhance their acquisition of necessary skills in computer usage. In fact, it has been fully introduced in various levels of education in Nigerian schools and West African Examination Council (WAEC) has started examining students in the subject – Computer Studies since May/June 2014 examination.

In the labour-market today, most employers prefer employees who possess computer skills. This encourages graduates of all disciplines to be computer literate. Stewart, and Bolt-Lee (2002) as cited by Agbatogun (2009), observed that computer literacy has been found to be the second skill after communication skill required of potential employees. Thus, whether an employee is a male or female, computer skill is an important criterion for securing jobs with any organization or establishment. Computer skill is also crucial when one intends to engage in computer business outfit for self-reliant to be self-employed. Curriculum planners at all levels of education have included computer science/studies in the courses/subjects to be offered in primary, secondary and tertiary education levels. There are also some organizations/establishments which specialize in training learners on the aspect of information technology (IT).

Aminu Saleh College of Education Azare Computer Centre is one of the Computer Training Institutes in Bauchi state which provides basic training on computer operations to individuals as well as corporate bodies. The centre offers certificate and diploma programmes within 3–6 months duration. The courses taught at the certificate level which is the focus of this study are Word processing package (Microsoft

Word), Spreadsheet program (Microsoft Excel) and Graphic design package (CorelDraw). The centre also trains students of this category basic Windows Operating System and General Introduction to Computer system in addition to the three major packages listed above. Since beginning of the certificate progtramme, there is low enrolment of female students. Abdulrauf (2009) noted that, number of female students in certificate in computer operation in College of Education, Azare is low compared to male counterparts.

Furthermore, the issue of the gender gap in IT and Computer related courses have caught the attention of many researchers and as a result, numerous studies have been conducted to study the extent of this disparity. Gender can be described as the sex of a person or a living organism. Gender refers to sets of relationships attributes, roles, beliefs and attitudes that define what being a man or a woman is within the society. It is a socially ascribed attribute as opposed to sex which is a biological attribute (Oghiagbephan & Asamaigo, 2010) in (Ikolo & Okiy, 2013). As a result of gender roles assigned by different cultures, thus, many women have been brought up to see technology and its use as reserved for only male gender.

Studies by (Wong and Hanafi 2007) had reported that females exhibited more negative views and perceptions towards the use of computers than males. It had been reported by Shashaani (1994) that socio-economic status, as indicated by parents' occupations and incomes, had a significant influence on students' attitude towards computers. Shashaani further argued that students from families with higher socio-economic status were found to have more positive attitudes towards computer use than those from families with lower status. It can therefore, be assumed that those from the higher socio-economic ends are more likely to have computers at home or have better opportunities of gaining access to it.

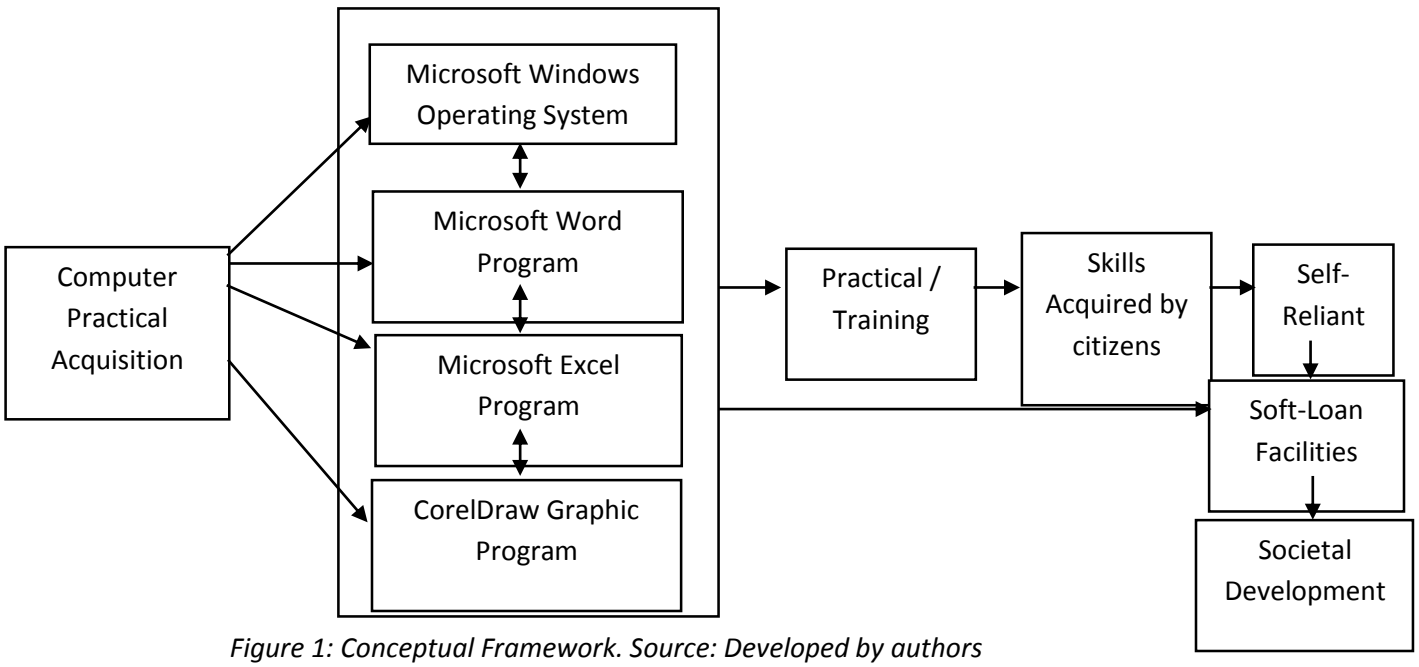

Figure 1: Conceptual Framework. Source: Developed by authors

Figure 1 above shows conceptual framework of the study. Computer practical skill acquisition in this study included introduction to windows operating system, Microsoft word program, Microsoft Excel program and CorelDraw graphic program. If these skills in the aforementioned programs are acquired through practical training by the learners (citizens), they can be self-reliant provided soft loan facilities is given to such learner to setup his / her business, thereby developing himself / herself financially and consequently developing the society itself from mayhem of joblessness. The institute or centre that provides training to people also require loan to equip the centre so that enough computer systems will be available for the learners to practice the tasks given to them by their instructors. With this, many people can be developed in the society.

II. Interaction between Society, ICT and Poverty

Jimoh, Kazeem & Folorunso (2013) explained the linkages in the three concepts: society, information and communication technology (ICT) and poverty. Computer is one of major ICT tools. Society usually exists and created by God almighty and poverty is natural phenomenon that exists in the society. No matter how God bless a particular society, one cannot rule out poverty completely, but it can only be minimized or reduced. Thus, poverty is embedded in a society. With the emergence of ICT tools such as computers, Internet, mobile phones, etc, it paves way for means of wealth creation, job opportunities and thereby reducing the rate of poverty and employment in the society. To imagine the impact of the influx of ICT tools, different job opportunities emerge and inhabitants of the society can get means of their daily bread which does not exist before when we look back as far as 2003 downward.

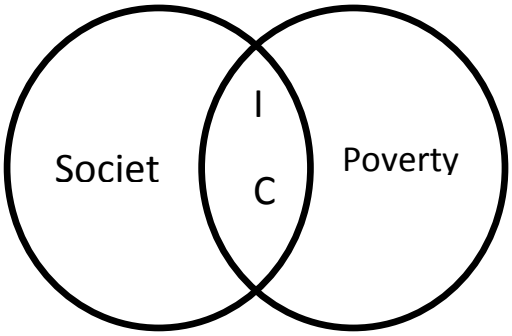

Figure 2: Interaction between Society, ICT and Poverty: Source: Jimoh, Kazeem & Folorunso (2013)

Research Questions

The following research questions were raised in this study:

(i) Does gender has effect in Microsoft Word program skill acquisition of Computer centre, Aminu Saleh College of Education, Azare Bauchi state?

(ii) Is there any gender difference in Microsoft Excel spreadsheet program skill acquisition of Computer centre, Aminu Saleh College of Education Azare Bauchi state?

(iii) What is the trend in gender skill acquisition in the use of CorelDraw graphic program of Computer centre, Aminu Saleh College of Education Azare Bauchi state?

Hypotheses

The following three hypotheses were formulated to guide this study:

Ho_1: There is no significant difference between the mean scores performance of female and male students in Microsoft Word program skill acquisition.

Ho_2: There is no significant difference between the mean scores performance of female and male students in Microsoft Excel spreadsheet program skill acquisition.

Ho_3: There is no significant difference between the mean scores performance of female and male students in CorelDraw graphic program skill acquisition.

III. Methodology

This is an expo-de-facto study, which employed secondary source of data. The data were collected at Computer Centre, Aminu Saleh College of Education, Azare with the assistance of two computer laboratory attendants. The population of the study consists of all students of certificates in computer operations of the Computer centre. Out of this population, five (5) different batches were randomly selected out of already trained 20 batches of students. Thus, total number of students sampled for this study is four hundred and sixty (460); consisting three hundred and ten (310) males and one hundred and fifty (150) females. The students' record files were checked to reveal information on scores/grades obtained in three major computer program skills, i.e. Microsoft Word program, Microsoft Excel program and CorelDraw graphic program.

Six different grade letters are used to show performances/skill acquisition level of students in different programs being run by the Computer Centre. Only five of the grade letters are considered in this study, the sixth one, which is 0-39: F (FAIL) is not considered since graduation records were used and passing all the three packages is a perquisite for the graduation in the certificate in computer operation programme. The interpretations of the grades are as follows:

GRADE		SCORE RANGES	INTERPRETATION
A	=	70 – 100	(DISTINCTION)
B	=	60 – 69	(CREDIT)
C	=	50 – 59	(MERIT)
D	=	45 – 49	(PASS)
E	=	40 – 44	(LOWER PASS)

IV. Results

Research Questions

Research Question one: Does gender has effect in Microsoft Word program skill acquisition of Computer centre, Aminu Saleh College of Education, Azare Bauchi state?

Table 1: Mean and Standard deviation performance scores of male and female students in Microsoft Word program skill acquisition

Gender	Number	*Mean* (M)	Standard Deviation (SD)
Male	310	3.08	1.25
Female	150	2.76	1.27

Table 1 shows mean and standard deviation performance scores of male and female students in Microsoft Word program skill acquisition. Males have mean value of 3.08 and standard deviation of 1.25, while female students have 2.76 and standard deviation of 1.27. It is clearly shown here that males have high mean value which greater than that of their female counterparts, thus there is gender effect in Microsoft Word program skill acquisition. This answers research question one. Low in standard deviation in each group indicated that the performance skill acquisition scores in Microsoft Word program obtained by students in each sex category is clustered around the mean.

Research Question two: Is there any gender difference in Microsoft Excel spreadsheet program skill acquisition of Computer centre, Aminu Saleh College of Education Azare Bauchi state?

Table 2: Mean and Standard deviation performance scores of male and female students in Microsoft Excel spreadsheet program skill acquisition

Gender	Number	*Mean* (M)	Standard Deviation (SD)
Male	310	2.89	1.57
Female	150	3.03	1.34

Table 2 depicts mean and standard deviation of male and female students in their skill acquisition performance in Microsoft Excel spreadsheet program, Male students (M = 2.89, SD = 1.57) and female students (M = 3.03, SD = 1.34). From table 2, it shows that female student has high mean value which is greater than that of their male counterparts. The difference in their mean is 0.14. This is an indication that female students acquired more practical skills than the male students. Standard Deviations obtained in both male and female students' performance skill acquisition is low which manifested the closeness of scores around the mean values. The ongoing discussion answers research question two.

Research Question three: What is the trend in gender skill acquisition in the use of CorelDraw graphic program of Computer centre, Aminu Saleh College of Education Azare Bauchi state?

Table 3: Mean and Standard deviation performance scores of male and female students in CorelDraw program skill acquisition

Gender	Number	*Mean* (M)	Standard Deviation (SD)
Male	310	3.10	1.23
Female	150	3.50	1.22

In the Table 3 above, Mean and SD of male students' skill acquisition performance are 3.10 and 1.23 respectively, while the female students' skill acquisition performance yielded 3.50 and 1.22 respectively. From these mean values, it is clearly observed that female student has high mean value compared to their male counterparts which indicates that female students acquired skill in CorelDraw higher than male students. The difference in their mean values is 0.40. Standard Deviations obtained in both male and female students' performance is low which manifested the closeness of scores around the mean values. This answers research question three in this study.

Hypotheses

Table 4: t-test analysis of mean performance in skill acquisition scores of male and female students in Microsoft Word program.

Gender	N	$\bar{X}$	SD	t_cri.	t-cal.	df	Decision
Male	310	3.08	1.23				
				1.98	2.54	458	Significant
Female	150	2.76	1.27				

Note: N = number of students, $\bar{X}$ = Mean score, SD = Standard Deviation. $\rho<0.05$, Note: df = degree of freedom

The data in Table 4 shows that the calculated t-value of 2.54 is greater than critical t-value of 1.98 at 0.05 level of significance of 458 degree of freedom. The null hypothesis 1, which stated that there is no significant difference between the mean scores performance of female and male students in Microsoft Word program skill acquisition was rejected which implies that there is significant difference between the mean scores performance of female and male students in Microsoft Word program skill acquisition. Thus, male students possess skill acquisition in Microsoft Word program better than their female counterparts.

Table 5: t-test analysis of mean performance in skill acquisition scores of male and female students in Microsoft Excel spreadsheet program.

Gender	N	$\bar{X}$	SD	t_cri.	t-cal.	df	Decision
Male	310	2.90	1.57				
				1.98	0.96	458	NS
Female	150	3.03	1.34				

Note: N = number of students, $\bar{X}$ = Mean score, SD = Standard Deviation.

P<0.05, Note: df = degree of freedom, NS = Not Significant

The data presented in Table 6 depicts the calculated t-value of 0.96 which is less than critical t-value of 1.98 at 0.05 level of significance of 458 degree of freedom. Null hypothesis 2, which stated that there is no significant difference between the mean scores performance of female and male students in Microsoft Excel spreadsheet program skill acquisition was not rejected meaning that students' level of skill acquisition in Microsoft Excel Spreadsheet program do not differ. Therefore, both male and female students acquired required skills in Microsoft Excel Spreadsheet program equally.

Table 6: t-test analysis of mean performance in skill acquisition scores of male and female students in CorelDraw graphic program.

Gender	N	$\bar{X}$	SD	t_cri.	t-cal.	Df	Decision
Male	310	3.07	1.23				
				1.98	3.31	458	NS
Female	150	3.50	1.22				

Note: N = number of students, $\bar{X}$ = Mean score, SD = Standard Deviation.
P<0.05, Note: df = degree of freedom, NS = Not Significant

The data presented in Table 6 depicts the calculated t-value of 3.31 which is greater than critical t-value of 1.98 at 0.05 level of significance of 458 degree of freedom. Null hypothesis, which stated that there is no significant difference between the mean scores performance of female and male students in CorelDraw graphic program skill acquisition was rejected meaning that female students' level of skill acquisition in CorelDraw graphic 5program is higher than that their male counterparts. Female students acquired CorelDraw graphic program skill more than male students.

V. Discussion of findings

This study found that male students acquired skills in the use of Microsoft Word program better than their female counterparts. The difference in their skill acquisition is statistically significant. This is in line with findings of Houtz and Gupta (2001) that said there was gender difference significantly in the way females and males rated themselves in their ability to master technology skills which include the use of Microsoft Word in typing documents. The finding is consonance with findings of Liaw's study (2002) which also indicated that males had more positive perceptions towards computers and Web technologies than females. The finding is also in line with study of Okoro (2013) which agreed that business education graduates had required competencies in the use of different skills such as mail merging, typing, etc in Microsoft Word program. However, this study negates the finding of Ikolo & Okiy (2013) which stated that more female clinical students use Microsoft word and email (86% and 77.7%) more than their male counterparts,
Besides, the study found that students' level of skill acquisition in Microsoft Excel Spreadsheet program does not differ, thus, both male and female students acquired required skills in Microsoft Excel Spreadsheet program equally. This is in line with the study of Okoro (2013) which concluded that business education

graduates (irrespective of their gender) are competent in ability to key in different packages (ms word, excel, Corel Draws, power points), ability to open a desktop publishing environment; ability to identify cells, arrange, rearrange, name or rename a cell and skills in producing accounting jobs using spreadsheet software. Ability to merge mail by deleting, ability to identify and use document, format existing ones in the system to prepare reports, memos, invoices and letters.

Furthermore, this study found that female students acquired more skills in CorelDraw graphic than their female counterparts. This disagreed with the study of Ikolo & Okiy (2013) which stated that more male clinical students use CorelDraw graphic design (62%) than female students (30%).

VI. Conclusion

This study investigated into effect of gender in computer practical skills acquisition for societal development. The major findings were male students acquired more skills in Microsoft Word program better female students. Also, both male female students skill acquisition did not differ in the use of Microsoft Excel spreadsheet program while female students possessed more skills better than male students in CorelDraw graphic program. This is an indication that females tend to use CorelDraw programs than male students. This is true scenario of what happens in some business centre where female staff is used as computer operators.

VII. Recommendations

The following recommendations were made:

(i) More computer systems should be available at various training centre/institutes to enable student drill themselves while on training.

(ii) Soft loans should be made available by government to learners so as to start a business centre after studies.

(iii) All various training centres/institutes should be given access to the soft loan provided so as to improve the standard of such centres.

(iv) Female wards should be encouraged for such programs so that they be self-reliant and be employer of labour in future.

References

Abdulrauf, M. (2009). Gender Participation and Performances in Computer Program in Computer Centre, College of Education, Azare. *Unpublished Long Essay submitted to Computer Centre, C.O.E. Azare.*

Agbatogun, A. O. (2009). Gender, Computer Access and Use as Predictors of Nigerian Undergraduates' Computer Proficiency In *African Research Review. 3(4),* Pp. 61-78

Agbatogun, A.O. (2010): Gender, Academic Qualification And Subject Discipline Differentials of Nigerian Teachers' ICT Literacy. *Academic Leadership: The Online Journal.* 8(1).

Comber, C., Colley, A., Hargreaves, D. J. and Dorn, L. (1997). The Effects of Age, Gender and Computer experience upon computer attitudes. *Educational Research*, 39(2).

Federal Ministry of Education 1998). National Policy on Education. Abuja: Federal Government Press.

Houtz, L. E., and Gupta, U. G. (2001). Nebraska high school students' computer skills and attitudes. *Journal of Educational Computing Research,* 16 (1).

Ikolo, V.E. and Okiy R.B. (2012). Gender Differences in Computer Literacy Among Clinical Medical Students in Selected Southern Nigerian Universities. Library Philosophy and Practice (e-journal).Paper 745. Retrieved on 12th October, 2014 from http://digitalcommons.unl.edu/libphilprac/745

Jennings, S. E. and Onwuegbuzie, A. J. (2001). Computer attitudes as a function of age, gender, math attitude, and developmental status. *Journal of Educational Computing Research,* 25 (4).

Jimoh, A.A.; Kazeem, A.D. & Folorunso, M.I. (2013). The impact of Information and Communication Technology (ICT) on Poverty Reduction in Azare Community, Katagum Local Government Area of Bauchi State, Nigeria. *Being a paper presented at the 1st ICT Conference/Exhibition 2013 on the Theme: ICT: Re-engineering a roadmap for societal development on 19th -21st November, 2013 held at New Multipurpose Hall, Federal College of Education (Tech.),* Akoka, Lagos State.

Kirkpatrick, H. and Cuban, L. (1998). What the research says about gender differences in access, use, attitudes and achievement with computers, *Educational Technology.* 38(6).

Lau, S. K. and Ang, Y. (1998). Attitudes of university students to computing: An Australian perspective. *World Conference on Educational Multimedia and Hypermedia*, Retrieved April 07, 2010 from http://eric.ed.gov/ERICDocs/data/ericdocs2/content_storage_01/0000000b/80/11/63/52.pdf.

Liaw, S. S. (2002). An Internet survey for perceptions of computers and the World Wide Web: relationship, prediction, and difference. *Journal of Computers in Human Behavior,* 18 (1).

Longe, D.B. and Uzoma, O.V. (2007). Technophobia and Its impact on Adults Learning to use computers in South Western Nigeria. *Journal of Information Technology Impact (JITI)* 7(1).

Microsoft Encarta (2009). Microsoft Encarta Dictionary Online Version. Redmond: US.A.

Ndukwe, E.C.A. (2007). *ICT as a Tool for Achieving the MDGs in Nigeria*. Abuja: National Communications Commission (NCC).

Okoro, J. (2013). Assessment of Information and Communication Technology Competencies Possessed by University Postgraduate Business Education Students to Handle Entrepreneurship Business Challenges in Nigeria In *Global Journal of Management and Business Research Administration and Management 13(8).* Retrieved on 20th October, 2014 from https://globaljournals.org/GJMBR_Volume13/6-Assessment-of-Information.pdf

Okwuonu, F. (2010). The Role of ICT on Poverty Eradication. Retrieved on October, 2013 from http://www.thisdaylive.com/articles/role-of-ict-in-poverty-eradication/81229/

Roussos, P. (2007). The Greek computer attitude scale: construction and assessment of psychometric properties. *Computers in Human Behavior, 23* (1).

Shashaani, L. (1994). Gender differences in computer experience and its influence on computer attitudes. *Journal of Educational Computing Research,* 11 (4).

Shashaani, L. (1997). Gender differences in computer attitudes and use among college students. *Journal of Educational Computing Research, 16 (1).*

Westerman, S. J.and Davies, D. R. (2000). *Acquisition and application of new technology skills: the influence of age.* Great Britain: Lippincott Williams & Wilkins for SOM.

Wong, S. L., & Hanafi, A. (2007). Gender Differences in Attitudes towards Information Technology among Malaysian Student Teachers: A Case Study at Universiti Putra Malaysia. *Educational Technology & Society*, 10 (2).