Original Research Article

Professional Development of Women in Information and Communication Technologies (ICTS) Centres in Universities in Rivers State

Fomsi Esther Fabiawari[1*], Charles-Ogan Gladys Ibibo[2]

[1]Department of Curriculum Studies/Educational Technology, Faculty of Education, University of Port Harcourt, Rivers State, Nigeria
[2]Department of Science Education, Faculty of Education, University of Port Harcourt, Rivers State, Nigeria

*Corresponding author: Fomsi Esther Fabiawari
Department of Curriculum Studies/Educational Technology, Faculty of Education, University of Port Harcourt, Rivers State, Nigeria

Abstract

Professional development of women in ICT is very crucial for sustainable development of a nation. However, the gender divide in terms of digital technologies has always been a problem. The aim of this study is to determine if women who work in University ICT centres in Rivers State are given the opportunity to develop themselves professionally. The study adopts the descriptive survey research design. The sample size constitutes twenty women from the three Universities in River State namely: University of Port Harcourt, River State University (RSU), and Ignatius Ajuru University of Education (IAUOE). The instrument for data collection was a questionnaire that assessed the professional development of women in ICT in terms of trainings attended, age and educational qualifications. The face and content validity of the questionnaire was determined by experts in ICT and the field of measurement and evaluation. The reliability of the questionnaire was analysed using the Cronbach alpha technique with an overall reliability of 0.83. The research questions were answered using simple percentages, mean and standard deviation. While the hypotheses were analysed using Chi square. Findings revealed that more of middle-aged women attend ICT training (ages 36-45), followed by younger women (ages 25 – 35) and then 46 above, gender does not significantly influence attendance to ICT trainings, but males and females attending ICT training is dependent on age. It is thus recommended that all women who work in ICT centres in Universities should be given equal opportunities to attend trainings for professional development irrespective of their age and educational qualifications.
Keywords: Information and Communication Technologies (ICTs), Professional Development, Women.

INTRODUCTION

Women in Nigeria have been facing a lot of challenges. The patriarchal system in Nigeria has not made it very easy for women to enjoy equal rights with their male counterparts. Aware of the under representation of women in viable careers and sectors, the Federal Government of Nigeria, in 2014, launched a gender based budgeting initiative known as the Growing Girls and Women in Nigeria (GWIN), to drive the economic and social inclusion of the female population of Nigeria (Vanguard Newspaper, 2014). This though is not the only initiative by the Federal Government aimed at developing women. The Ministry of Communication Technology has been working hard to empower women and girls through other specific technology initiatives such as the-ICT Girls Clubs, and the Smart Woman Nigeria project (Vanguard Newspaper, 2014). This move by the Federal Government is very imperative because as at 1st January, 2015, the total population in Nigeria was 180,199, 030 and 88, 950, 303 of that number are females which is 49.4% (Country meters, 2015). However, despite this large number, women still struggle to create impact in politics, education, agriculture, and ICT.

In agriculture, women, especially those in rural areas, have been very active in agricultural activities. They join the men in farming performing tasks such as land clearing and tilling, planting and weeding, harvesting, food processing, transportation and marketing just to mention few (Damisa, Samndi and Yohanna, 2007). Despite these efforts, however, "women's substantial contribution continues to be systematically marginalized and undervalued in

conventional agricultural and economic analyses and policies, while men's contribution remains the central, often the sole, focus of attention" (Jiggins, Samanta, and Olawoye, 2000).

Problem of the study

Unfortunately in Nigeria, women seem to be marginalized in the area of ICT. Okoroma (2012) cited in Awotua-Efebo, Fomsi and Njoku (2015) observed that despite the importance of ICTs in daily socio-economic activities, women in Nigeria are yet to adequately find their place in the world of ICTs. What about women who work in ICT centres in universities in Rivers State? Do they attend ICT based training that would develop them professionally? This is the problem of the study.

Aim and Objectives

The aim of this study is to determine if women who work in University ICT centres in Rivers State are given the opportunity to develop themselves professionally. The specific objectives of the study are to determine the:
1. Determine the association between the number of ICT training attended within certain years and gender.
2. Find out the association that exists between the ICT training attendance of males and females and their educational qualification.
3. Ascertain the extent to which ICT training attendance of male and female staff is associated with age.
4. Establish the association between the age of women and the number of ICT training they attend within certain years

Research Questions
1. What is the association between the number of ICT training attended within certain years and gender?
2. What association exists between the ICT training attendance of males and females and their educational qualification?
3. To what extent is the ICT training attendance of male and female staff associated with age?
4. What is the association between the age of women and the number of ICT training they attend within certain years

Hypotheses
1. The number of times ICT training is attended is not significantly dependent on gender
2. The ICT training attended by males and females is not significantly dependent on educational qualification
3. The ICT training attendance of male and female is not significantly associated with their age

4. There is no significant relationship between the age of women and the number of times they attend ICT training.

Literature Review

Education is the bedrock of every society. With education come wealth, knowledge and power. An economy with an uneducated citizenry is usually impoverished. Education is the cornerstone for sustainable development. Despite this realization, however, Aja-Okorie (2013) observes that at every educational level, women earn less than their male counterparts and in some cases men with less education earn more than better educated female peers. Also, Nigerian girls drop-out of school earlier than their male counterparts. Evidence further shows that more than two thirds of 15-19 year old girls in Northern Nigeria are unable to read a sentence" (Aja-Okorie, 2013).

Nnubia (2012) cited in Nduka-Ozo (2013) made reference to a UNESCO (1995) report which revealed that 66% or two thirds of the world's population, approximating one billion illiterates, were females, while two thirds of the 300 million children who did not have access to formal schooling worldwide were females. The UNESCO report goes on further to reveal that in Nigeria only 31% of women can read and write while the population of males that are literate is 54%. These reports reveal a grim reality that faces our country Nigeria. Without the development of women, a country's sustainable development will be undermined. The term, sustainable development, was defined in a report published by the World Commission on Environment and Development (WCED) in 1987. That report also known as the Brundtland report was titled "Our Common Future". It defined sustainable development as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, p. 43). This definition implies that sustainable development involves meeting the needs of the present society and the future to come. It also involves creating equal opportunities both for the present and the future. It embraces all aspects of human living which includes social, religious, political, environmental and educational (United Nations, 2007).

Information and Communication Technologies (ICTs) play a major role in the sustainable development of a nation. In the third edition of its publication on the indicators of sustainable development: guidelines and methodologies, approved by the Commission for Sustainable Development (CSD), the Department of Economic and Social Affairs of the United Nations Secretariat (2007), included as one of its major themes Economic development. Under this major theme there were other subthemes which included: Employment and ICTs. Under the employment subtheme, a core indicator was share of women in wage employment in the non-agricultural sector, which of course includes ICT.

Considering the fact that technology has turned the world into a global village, any society that is not technology driven will find itself lagging behind in the area of development. Development could come in different phases. There is personal development where an individual decides to develop himself in any area of interest to him/her. There is national development, which involves a country improving the lives of its citizens economically, environmentally and socially; and there is professional development, where individuals in specific professions desire to improve their skills in their areas of specialization. Plymouth University defines Professional Development as a means of supporting people in the workplace to understand more about the environment in which they work, the job they do and how to do it better. It is an on-going process throughout our working lives. For example, most teachers join professional organizations with the aim of meeting others in their fields with whom they could rub minds and add value to their profession. They also attend seminars and workshops that are aimed at developing their knowledge, skills and attitudes. They likewise take advantage of online resources such as Open Educational Resources (OERs) and Massive Open Online Course (MOOCS) which also improve their professional skills. In the same vein, women in ICTs need to develop themselves professionally. Those who find themselves in ICT based organizations or who work in ICT centers in higher institutions and other industries need continuous professional development. This they can get by attending ICT training seminars, workshops and conferences.

METHODS

The study adopts the descriptive survey research design. The sample size constitutes twenty women from the three Universities in River State namely: University of Port Harcourt, River State University (RSU), and Ignatius Ajuru University of Education (IAUOE). The instrument for data collection was a questionnaire titled Women's Professional Development in ICT (WOPDICT). It was a 20-item questionnaire which covered demographic variables of respondents such as sex, age and educational qualifications. It also sought to determine among others the number of times women go on ICT training. The face and content validity of the questionnaire was determined by experts in ICT and the field of measurement and evaluation. Suggestions from these experts were incorporated into the final version of the instrument. The reliability of the questionnaire was analysed using the Cronbach alpha technique with an overall reliability of 0.83 obtained. The research questions were answered using simple percentages, mean and standard deviation. While the hypotheses were analysed using Chi square.

RESULTS AND DISCUSSION

Research Question 1: What is the association between the number of ICT training attended within certain years and gender?

Hypothesis 1: **The number of times ICT training is attended is not significantly dependent on gender**

Table 1: No of ICT Training * Gender Cross tabulation

|			Gender		Total
			Male	Female	
Number of ICT Training	Ict Training 1-2yrs	Count	4	4	8
		Expected Count	5.2	2.8	8.0
		% within NumICTrraining	50.0%	50.0%	100.0%
		% within Gender	11.8%	22.2%	15.4%
		% of Total	7.7%	7.7%	15.4%
		Residual	-1.2	1.2	
	Ict Training 3-5yrs	Count	3	3	6
		Expected Count	3.9	2.1	6.0
		% within NoICTrraining	50.0%	50.0%	100.0%
		% within Gender	8.8%	16.7%	11.5%
		% of Total	5.8%	5.8%	11.5%
		Residual	-.9	.9	
	Ict Training 5yr Above	Count	27	11	38
		Expected Count	24.8	13.2	38.0
		% within NoICTrraining	71.1%	28.9%	100.0%
		% within Gender	79.4%	61.1%	73.1%
		% of Total	51.9%	21.2%	73.1%
		Residual	2.2	-2.2	
Total		Count	34	18	52
		Expected Count	34.0	18.0	52.0
		% within NoICTrraining	65.4%	34.6%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	65.4%	34.6%	100.0%
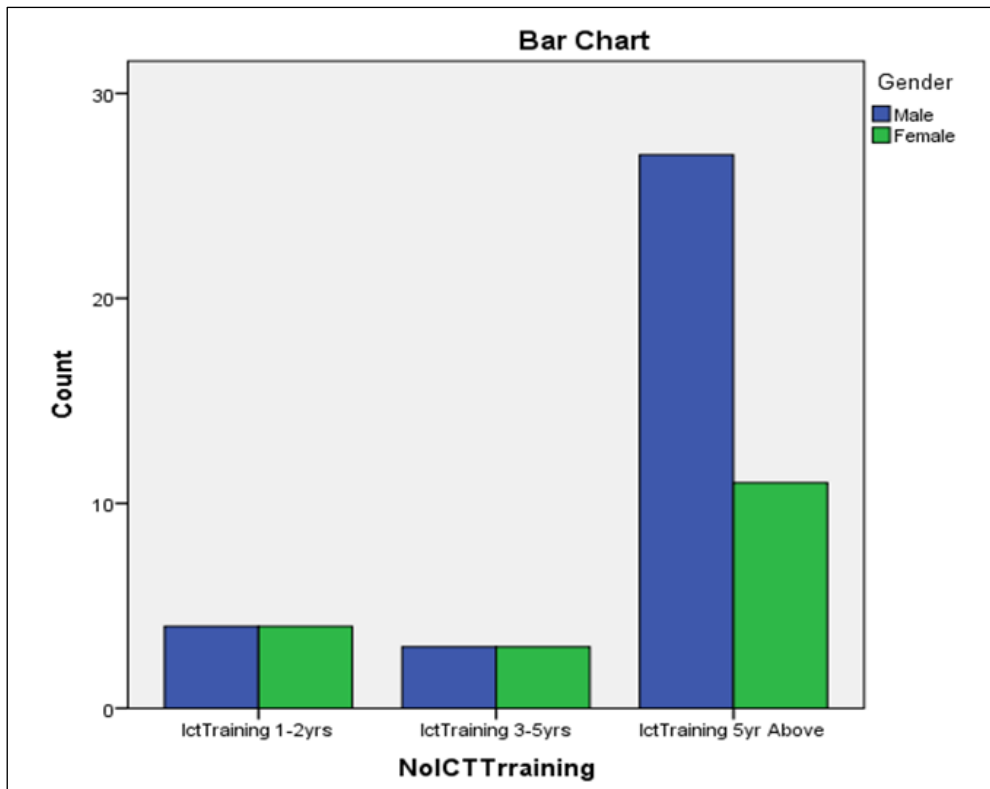
Figure 1: Bar chart showing number of times males and females attend training in ICT centres in the three universities

Table 1 and figure 1 show the count/number of times males and females in ICT centers attended ICT trainings. It shows a count of 4 times for males and females who have attended ICT training within 1-2years, 3 times for males and females attending ICT training within 3-5 years and 27 times for males and 11 times for females attending ICT training 5years and above. This result reveals that the attendance of ICT Training by males compared to females is not the same. However, when the data was subjected to chi square analysis (table 2), it showed no significant difference in the number of times males and females attend ICT training.

Table 2: Chi Square analysis of gender differences in attendance of ICT Training

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.003[a]	2	.367
Likelihood Ratio	1.948	2	.378
Linear-by-Linear Association	1.730	1	.188
N of Valid Cases	52		

To test the null hypothesis, table 2 shows the Chi square χ^2 value of 2.003 (2) p > 0.5, i.e. p = .367 is greater than 0.05 and this is statistically not significant at the chosen alpha level of 0.05, the null hypothesis is therefore accepted and the alternate rejected. This implies that attendance of ICT training is not significantly dependent or associated with gender as p < 0.05 i.e. p is .367 is greater than .005. This result is not surprising because in a study carried out by Awotua-Efebo, Fomsi and Njoku (2015) to determine female access to IT training in four major industries in Rivers State in Nigeria, there was no significant difference in the number of times males and females attend IT training. Thus, there was no association between the number of ICT training attended within certain years and gender.

Research Question 2: What association exists between the ICT training attendance of males and females and their educational qualification?
Hypotheses: 2. **The ICT training attended by males and females is not significantly dependent on educational qualification**

Table 3: Educational Qualification * Gender Cross tabulation

|			Gender		Total
			Male	Female	
EduQualification	OND	Count	2	2	4
		Expected Count	2.5	1.5	4.0
		% within EduQualification	50.0%	50.0%	100.0%
		% within Gender	6.1%	10.5%	7.7%
		% of Total	3.8%	3.8%	7.7%
		Residual	-.5	.5	
	HND	Count	9	2	11
		Expected Count	7.0	4.0	11.0
		% within EduQualification	81.8%	18.2%	100.0%
		% within Gender	27.3%	10.5%	21.2%
		% of Total	17.3%	3.8%	21.2%
		Residual	2.0	-2.0	
	BSC	Count	11	5	16
		Expected Count	10.2	5.8	16.0
		% within EduQualification	68.8%	31.3%	100.0%
		% within Gender	33.3%	26.3%	30.8%
		% of Total	21.2%	9.6%	30.8%
		Residual	.8	-.8	
	MSC	Count	11	10	21
		Expected Count	13.3	7.7	21.0
		% within EduQualification	52.4%	47.6%	100.0%
		% within Gender	33.3%	52.6%	40.4%
		% of Total	21.2%	19.2%	40.4%
		Residual	-2.3	2.3	
Total		Count	33	19	52
		Expected Count	33.0	19.0	52.0
		% within EduQualification	63.5%	36.5%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	63.5%	36.5%	100.0%
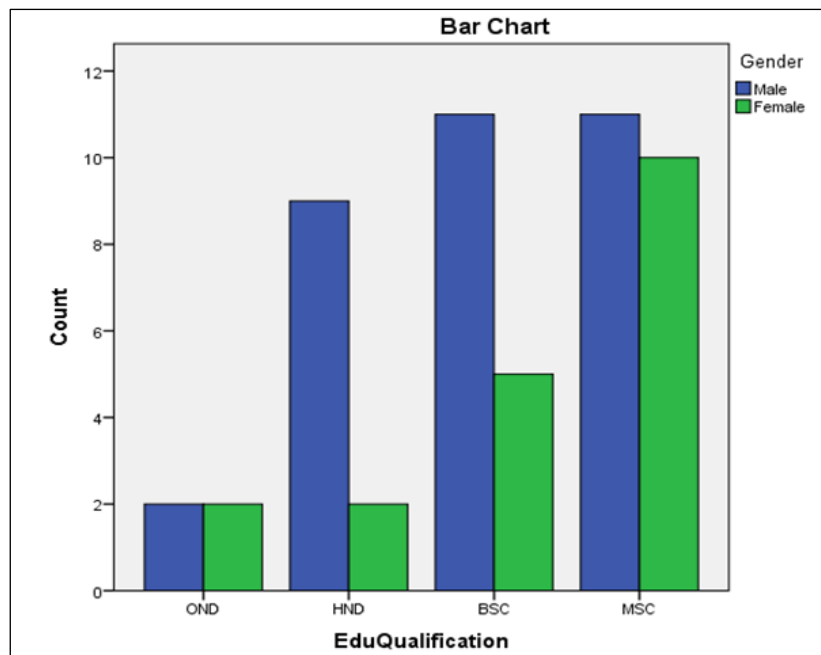
Figure 2: Gender, educational qualification and ICT training

Table 3 and figure 2 show the educational qualification of male and female ICT staff who have attended ICT Training. For males, it shows a count of 2 males having OND educational qualification, a count of

9 for HND educational qualification, a count of 11 for BSC educational qualification and a count of 11 for MSC educational qualification. For females, it shows a count of 2 females having OND educational qualification, a count of 2 for HND educational qualification, a count of 5 females having BSC

educational qualification and a count of 10 for MSC educational qualification. This finding reveals that males and females who attend ICT trainings do not have the same educational qualification. However, the chi square analysis of the null hypothesis shows no significant difference (Table 4).

Table 4: Chi Square analysis on Gender and Educational Qualification

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.216[a]	3	.359
Likelihood Ratio	3.356	3	.340
Linear-by-Linear Association	.943	1	.331
N of Valid Cases	52		

Table 4 shows the Chi square $\chi 2$ value of 3.216 (2) p > 0.5, i.e. p = .359 is greater than 0.05 and this is statistically not significant at the chosen alpha level of 0.05 thus the null hypothesis is therefore accepted and the alternate rejected. This implies that male and female attending ICT training is not dependent or associated with their educational qualification as p < 0.05 i.e. p is .359 is greater than .005. Thus, attendance of ICT training by males and females in ICT centres in the three universities in Rivers State is not associated with their educational qualification. This finding is very interesting. In their study to ascertain the relationship between gender, educational attainment and access to information technology (IT) and training and its implications for sustainable for development, Abraham, Mezieobi, and Fomsi (2008) discovered that educational qualification

of females who have access to IT education is statistically different from that of females. Generally, if women lack access to formal education in STEM or STEM related courses, we expect such a finding. However, Figure 2 shows that more women possess a master's degree. It seems that working in a higher education environment has an influence on the women's goals to further their education and acquire higher degrees.

Research Question 3: To what extent is the ICT training attendance of male and female staff associated with age?
Hypothesis 3: **The ICT training attendance of male and female is not significantly associated with their age**

Table 5: Age * Gender Cross tabulation

|			Gender		Total
			Male	Female	
Age	Age 25-35	Count	21	6	27
		Expected Count	17.1	9.9	27.0
		% within Age	77.8%	22.2%	100.0%
		% within Gender	63.6%	31.6%	51.9%
		% of Total	40.4%	11.5%	51.9%
		Residual	3.9	-3.9	
	Age 36-45	Count	11	9	20
		Expected Count	12.7	7.3	20.0
		% within Age	55.0%	45.0%	100.0%
		% within Gender	33.3%	47.4%	38.5%
		% of Total	21.2%	17.3%	38.5%
		Residual	-1.7	1.7	
	Age 46 and Above	Count	1	4	5
		Expected Count	3.2	1.8	5.0
		% within Age	20.0%	80.0%	100.0%
		% within Gender	3.0%	21.1%	9.6%
		% of Total	1.9%	7.7%	9.6%
		Residual	-2.2	2.2	
Total		Count	33	19	52
		Expected Count	33.0	19.0	52.0
		% within Age	63.5%	36.5%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	63.5%	36.5%	100.0%
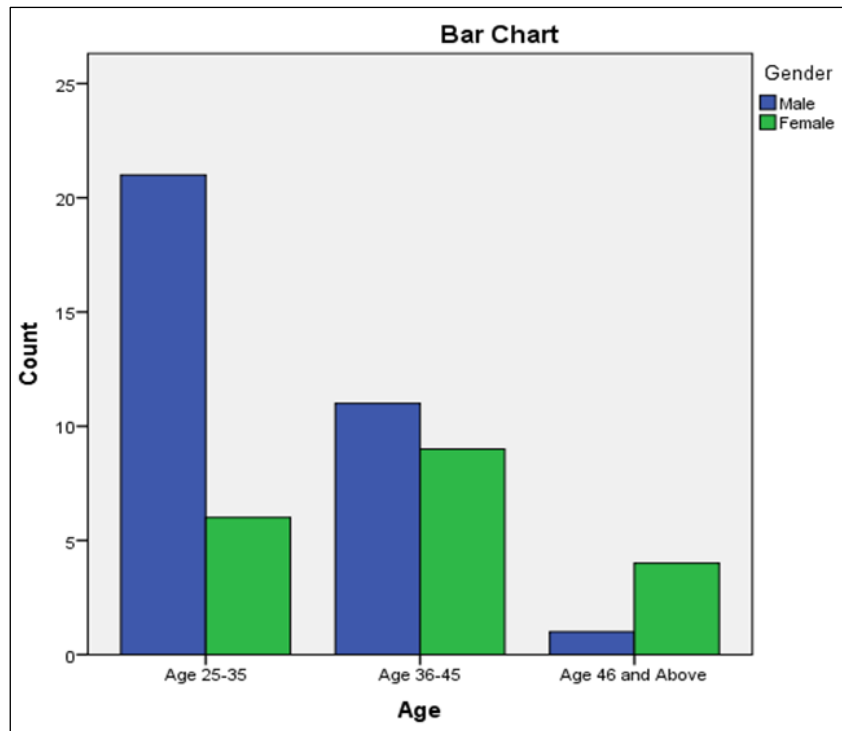
Figure 3: Age and participation in ICT training

Table 5 and Figure 3 show the count/number of male and female ICT staff who have attended ICT and their age. For males, it shows a count of 21 for males aged 25-35, a count of 11 males aged 36-45 and a count of 1 male aged 46 and above. For females, It shows a count of 6 for females aged 25-35, a count of 9 for females aged 36-45, a count of 4 for females aged 46 and above. This shows that male and female who attend ICT trainings are not of same age.

To test the null hypothesis, Table 6 shows the Chi square χ2 value of 7.077 (2) p > 0.5, i.e. p = .029 is less than 0.05 and this is statistically significant at the chosen alpha level of 0.05 thus the null hypothesis is therefore rejected and the alternate accepted. This implies that male and female attending ICT training is dependent or associated with their age as p < 0.05 i.e. p is .029 is less than .005.

Table 6: Chi-Square Tests on Age of Men and Women and ICT Training

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.077[a]	2	.029
Likelihood Ratio	7.137	2	.028
Linear-by-Linear Association	6.796	1	.009
N of Valid Cases	52		

The finding of this study is similar to that of Awotua-Efebo, Fomsi and Njoku (2015) who discovered that there was a significant difference in the ages of males and females who attend IT training in industries in Rivers State. The result as shown in tables 5 and 6 and figure 2 is quite interesting. At a younger age (25-35), the males are readily available to attend trainings for their professional development, while the females of the same age range are less available. This could likely be the result of societal norms within Nigeria. In a typical Nigerian community, men do not rush into marriage at a very early age. At age 25-35, the men are expected to be furthering their education to any level so they can secure good jobs, establish businesses and build career paths for themselves. Conversely, at the same age range (25-35), a typical Nigerian woman is expected to get married and start

having children. In fact, it is generally believed that a woman at 35 years of age is already too old for marriage and has ruined her chances of having children and securing a family of her own. So they are expected to get married early and start having children. Women who work in ICT centres may equally be influenced by this norm in the society, thus explaining why women of this age (25-35) are less available to attend ICT trainings.

Research Question 4: What is the association between the age of women and the number of ICT training they attend within certain years?
Hypothesis 4: There is no significant association between the age of women and the number of times they attend ICT training.

Table 7: Age of women * Number of ICT Training Cross tabulation

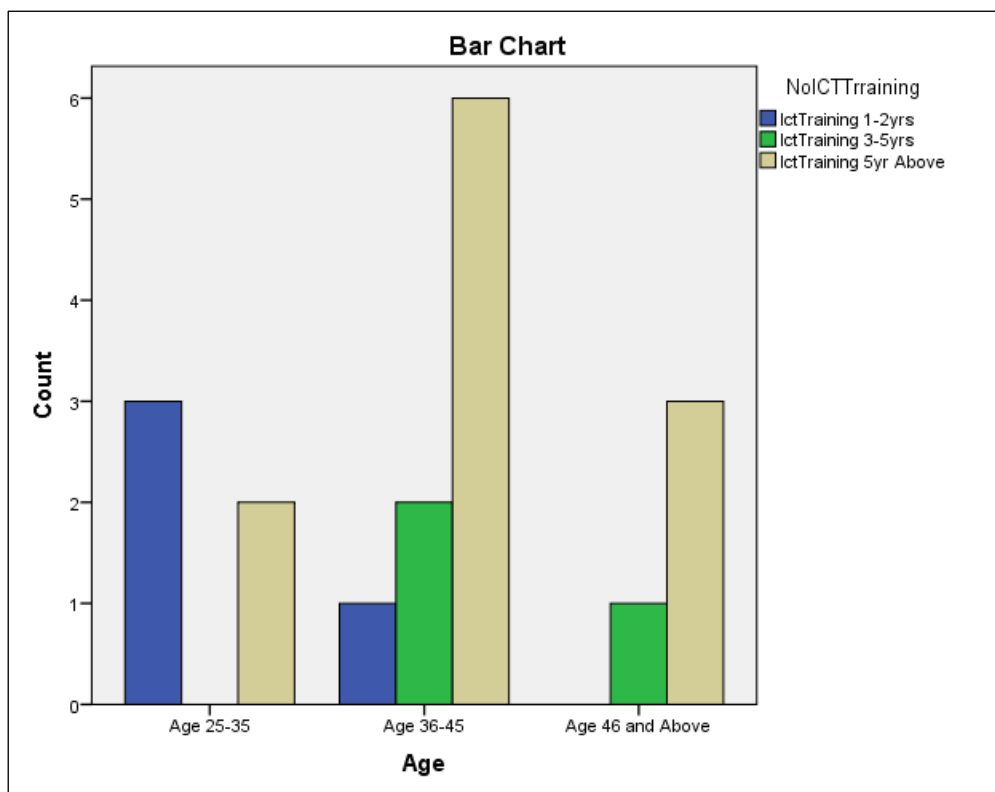|			Number of ICT Training			Total
			ICT Training 1-2yrs	ICT Training 3-5yrs	ICT Training 5yr Above	
Age	Age 25-35	Count	3	0	2	5
		Expected Count	1.1	.8	3.1	5.0
		% within Age	60.0%	0.0%	40.0%	100.0%
		% within NoICTTrraining	75.0%	0.0%	18.2%	27.8%
		% of Total	16.7%	0.0%	11.1%	27.8%
		Residual	1.9	-.8	-1.1	
	Age 36-45	Count	1	2	6	9
		Expected Count	2.0	1.5	5.5	9.0
		% within Age	11.1%	22.2%	66.7%	100.0%
		% within NoICTTrraining	25.0%	66.7%	54.5%	50.0%
		% of Total	5.6%	11.1%	33.3%	50.0%
		Residual	-1.0	.5	.5	
	Age 46 and Above	Count	0	1	3	4
		Expected Count	.9	.7	2.4	4.0
		% within Age	0.0%	25.0%	75.0%	100.0%
		% within NoICTTrraining	0.0%	33.3%	27.3%	22.2%
		% of Total	0.0%	5.6%	16.7%	22.2%
		Residual	-.9	.3	.6	
Total		Count	4	3	11	18
		Expected Count	4.0	3.0	11.0	18.0
		% within Age	22.2%	16.7%	61.1%	100.0%
		% within NoICTTrraining	100.0%	100.0%	100.0%	100.0%
		% of Total	22.2%	16.7%	61.1%	100.0%

Figure 4: Women, Age and ICT training

Table 7 and Figure 4 show the count/number of times females within some age brackets have attended ICT trainings. It shows that 3 women between the ages of 25-35 have attended ICT training within 1-2years, 1 woman between the ages of 36-45 have attended ICT training within 1-2years women, no woman between the ages of 46 and above have attended ICT training within 1-2years. It also shows that no woman between the ages of 25-35 have attended ICT training within 3-5years, 2 women between the ages of

36-45 have attended ICT training within 3-5years, 1 woman between the ages of 46 and above have attended ICT training within 3-5years women. It shows also that 2 women between the ages of 25-35 have attended ICT training within 5years and above, 2 women between the ages of 36-45 have attended ICT training within 5years and above and 6 women 46 years and above have attended ICT training within 5years above. This reveals that the attendance of ICT Training by women is not same for the different age groups. Therefore the age of women who attend ICT is majorly middle-aged women aged 36-45. This result did not come as a surprise, especially because in Nigeria, a lot of women face the pressure to get married and start raising children at an early age. Women 25-35 years are still at child bearing age and may be saddled with responsibilities of caring for the family. At this point in their lives, they carry a lot of family responsibilities and may not have time to attend trainings that will enhance their professional development at their work places. Most of the middle aged women (36-45) may already be done with child bearing and may have less responsibility caring for their children. They are thus more available to attend ICT trainings for their professional development. The chi square analysis (Table 8) showed no significant difference between age of women and number of times they attend ICT training.

Table 8: Chi-Square Tests for age of women and ICT training

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.303[a]	4	.178
Likelihood Ratio	7.113	4	.130
Linear-by-Linear Association	2.982	1	.084
N of Valid Cases	18		

To test the null hypothesis, table 8 shows the Chi square $\chi2$ value of 6.303 (4) p > 0.5, i.e. p = .179 is greater than 0.05 and this is statistically not significant at the chosen alpha level of 0.05 for the groups. The null hypothesis is therefore accepted and the alternate rejected. This implies that women attending ICT training is not significantly dependent or associated with age as $p < 0.05$ i.e. p is .179 is greater than .005.

CONCLUSION
This research has shown that males and females who work in ICT centers in universities in Rivers State have opportunities to attend trainings for professional development. Age had a significant influence on the number of times both male and females attend training with the males having the opportunity to attend trainings more often irrespective of their age. The females with a master's degree had equal opportunities to attend professional training as their male counterparts. Whereas, the females with only Bachelor's degree had less opportunities to attend ICT trainings compared to the males. This finding underscores the fact that more opportunities should be created for women to acquire degrees higher than their bachelor's degree. They should further their education in STEM disciplines. Women should equally not be forced into early marriage and child bearing. This poses a great threat to their career development in ICT.

RECOMMENDATIONS
1. Women who work in ICT centers in Universities should be given equal opportunities to attend trainings for professional development irrespective of their age and educational qualifications.
2. Barriers to furthering beyond their bachelor's degree such as marriage, child bearing and other traditional norms should be identified and addressed to give the females equal opportunities for professional development as their male counterparts.
3. More women should also be encouraged by stakeholders in education to pursue careers in STEM. This would go a long way to boost their self-confidence and desire for professional development when they find themselves working in any ICT related field.

REFERENCES
- Abraham, L. N.; Mezieobi, S. A., & Fomsi, E. F. (2008). Gender, educational attainment and access to information technology (IT) and training: implications for sustainable for development. *Educational Horizon,* 5(10), 20-27. Journal of the Association of Educationists in Nigeria (AEN), Ebonyi State University, Abakiliki, Nigeria
- Aja-Okorie, U. (2013) Women education in Nigeria: Problems and implications for family role and stability. *European Scientific Journal,* (9)(28). DOI: https://doi.org/10.19044/esj.2013.v9n28p%25 p Available at http://eujournal.org/index.php/esj/article/viewFile/1897/1839
- Awotua-Efebo, E. B.; Fomsi, E. F., & Njoku, C. (2015). Female Access to Information Technology (IT) Training in Industries: Challenges for Manpower Development in Nigeria. *Journal of International Academic Research for Multidisciplinary (JIARM),* 3(1), 274-284.
- Countrymeters. (2015). Nigeria population clock. Available at http://countrymeters.info/en/Nigeria
- Daily Independent. (2015). Marginalisation of Nigerian women in politics. Published Jan. 26, 2015. Available at

http://dailyindependentnig.com/2015/01/marginalisation-nigerian-women-politics/

- Damisa, M. A., Samndi, R., & Yohanna, M. (2007). Women Participation in Agricultural Production: A Probit Analysis. *Journal of Applied Sciences,* 7, 412-416. **DOI:**10.3923/jas.2007.412.416. Available at http://scialert.net/abstract/?doi=jas.2007.412.416

- Jiggins, J., Samanta, R. K., & Olawoye, J. E. (2000). Improving women farmers act to extension service. Available at https://www.empowerwomen.org/en/resources/documents/2014/7/improving-women-farmers-access-to-extension-services?lang=en

- Nduka-Ozo, S. N. (2013) Counselling Nigerian women for education and development through Information and Communication Technology (ICT). *Mediterranean Journal of Social Sciences* MCSER Publishing, Rome-Italy (4)(8). Doi:10.5901/mjss.2013.v4n8p113

- Nuhu, H. S. Donye, A. O., & Bawa, D. B. (2014) Barriers to women participation in agricultural development in Bauchi local government area of Bauchi State, Nigeria. *Agriculture And Biology Journal of North America.* doi:10.5251/abjna.2014.5.4.166.174 Available at http://www.scihub.org/ABJNA/PDF/2014/4/ABJNA-5-4-166-174.pdf

- Plymouth University. (n.d). What is Professional Development? - Plymouth. Retrieved from *www6.plymouth.ac.uk/pages/view.asp?page=10319*

- United Nations. (2007). Indicators of sustainable development: Guidelines and methodologies. October 2007 Third Edition. Retrieved from http://www.un.org/esa/sustdev/natlinfo/indicators/guidelines.pdf

- Vanguard Newspaper. (2014). 1,000 girls in ICT to correct imbalance in Nigeria ICT adoption. April 30, 2014. Retrieved from https://www.vanguardngr.com/2014/04/1000-girls-ict-correct-imbalance-nigeria-ict-adoption/

- World Commission on Environment and Development (WCED). (1987). *Our common future.* Oxford: Oxford University Press, 1987 p. 43.