GENDER DIFFERENTIALS IN ICT UPTAKE RATING AMONG RESEARCH SCIENTISTS IN THE UNIVERSITIES OF AGRICULTURE, NIGERIA

Olojede J.C

Department of Rural Sociology and Extension, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria
e-mail:jcolojede@gmail.com; joy.olojede@yahoo.com

ABSTRACT
The study examined the challenge to ICT uptake rating among research scientists in the Nigerian Universities of Agriculture through gender inequality. Primary data were used for the study which was generated through the use of questionnaire. The study took a sample of 240 respondents from a population of 1758 from the three Nigerian Universities of Agriculture. Simple random technique was used to select the respondents. Data collected were analyzed using descriptive statistics and mean scores of a 4- point Likert type- scale while Pearson Product Moment correlation was used to test the hypothesis. Results show that there were more males within the system than females, and ICT facilities were largely available with grand mean score of 2.76. Males have higher level of ICT knowledge and spent more time on ICT than their female counterpart. However the result shows that there is a significant relationship at 5% level of probability between the males and females. Thus the null hypothesis is rejected while the alternate is accepted. Therefore, the study recommends that an increasing opportunity and encouragement be given to the female research scientists in our Universities of Agriculture with the purpose of enhancing their capacity which would in turn improve their productivity.

Keywords: Inequality, gender, ICT uptake, and Research Scientists

INTRODUCTION
Issues of gender equality are of great concern in the contemporary world. Equality which is a state of being equal especially in status, rights and privileges is highly emphasized but the reverse is the case in practice, thus making inequality a common occurrence. Gender inequality persists because of assigned roles for man and woman, though women and girls bear the highest cost of inequalities which after the harm, ultimately extends to everyone. For instance, one of such cost inequality is less access to employment (Alison *et al.*, 2010) Evidence had also shown that in Nigeria gender inequality exists in all levels of Nigerian educational system: - primary, secondary and tertiary institutions (Ame, 2013). Binta (2005) also affirmed that there are more male teachers in our tertiary institutions than females, which implies that there is an absence of role models for female gender to inspire them (Okeke and Ejiofor, 2011). In the world information, it is believed that men and women have equal opportunity to access ICT ,because most times women's access to new ICT is mistakenly understood to be synonymous with available internet -able computer for women's use which is not really true (Thas *et al.*, 2007). More importantly, the MDG with series of eight-time bound development goals agreed to by the International community had earlier considered gender equality and women empowerment as one of the goals which has to be achieved by the year 2015 (FGN, 2006). This, they considered will help to build equitable rapid economic growth.

Information is power, and ICT is an instantaneous fact finding engine and means of sharing information, as well as a link in the chain of the development process. Also, ICT is seen as an umbrella that covers gap in information flow nevertheless, gender gap is still obtainable. Heyzer (2007) stated

that, a genuine information society demands the equitable participation of all members of the society both males and females in the creation, management and use of its products. Munyua (2007) further stated that information and knowledge are essential if women and men are to respond to opportunities and more challenges of this and coming century. Unfortunately, most women within developing countries are removed from the information age (Okeke and Ejiojor, 2011). Similarly Hajara and Mustapha (2013) and Akinpelu (2013) observed gender differences in access and use of ICT in Nigeria. This is revealed by lack of skills and women's negative attitudes towards the media. Furthermore, tertiary institution is a communication environment where social interactions among members are used to facilitate the ability and desire to exchange ideas that are vital to the execution of individual and group tasks. Then, if access and use of ICT is directly linked to social and economic development, it is imperative to ensure that there is equity in ICT uptake in tertiary institutions, especially in the Universities of Agriculture. More so, among others, the techniques and ability to access or refuse ICT to a whole range of scientific data and knowledge determines the direction to development. Therefore, this study attempts to assess gender inequality: A challenge to ICT uptake rating among research scientists in the Universities of Agriculture in Nigeria.

METHODOLOGY

The study was carried out in the three Universities of Agriculture in Nigeria namely: Michael Okpara University of Agriculture, Umudike, Abia State; Federal University of Agriculture Abeokuta, Ogun State and University of Agriculture, Makurdi, Benue State, Nigeria. These Universities were selected because they met the criteria for having males and females researcher's that make use of ICT infrastructure in updating and upgrading themselves. They were also well located in different parts of the nation covering the West, East and North. Each of these universities has research scientist population of 556 (males =350; females =201); 556 (males = 306; females = 250) and 746 (males = 500; females = 246) for FUAAB, MOUAU and UAM respectively. Multi-stage sampling procedure was adopted in the sampling of both male and female researchers in these Universities. Firstly, a random selection of 8 colleges from each of the universities was done; making a total of 24 colleges from the three universities. Thereafter, from the selected colleges, two departments were randomly selected, giving a total of forty-eight departments. Lists of the researchers were obtained from the Head of the departments of the selected colleges while three males and females were randomly selected. This gave a total of 288 researchers, and respondents (staff) 96 from each of the Universities. The instrument for data collection was a structured questionnaire administered to 288 respondents. Data collected were on: gender (sex), ICT availability, level of knowledge of ICT by gender and the numbers of hours spent on ICT by gender. Data collected were subjected to analysis using descriptive statistics such as frequency distribution and percentages. Means of a four- point Likert- type scale weighted according to the degree of agreement was used to elucidate information on the levels of knowledge by gender while number of hours on ICT between the male and female scientists in the study area was compared using Z-test statistics.

RESULTS AND DISCUSSION

Gender

Distribution of respondents by gender is presented in Fig 1. Among the sampled respondents, MOUAU-52.5%, FUAU-61.3% and UAM-77.5% were males while that of the females were MOUAU-47.5%, FUAU-38.7% and UAM-22.5% respectively. However, men and women were involved as research scientists and engaged in ICT uptake in the study area. This is in agreement with Heyzer (2007) that a genuine information society demands equitable participation of all members of the society both males and females in management and use of ICT products. The result also shows that gender distribution of the workforce in these universities is skewed in favour of male folks with 63.7% and

females 36.3% respectively. This difference corroborates the work of Binta (2005) and Ame, (2013) which stated that there are more male researchers in the tertiary institutions in Nigeria than females. This disparity in gender could be as a result of males having a greater privilege in education than females; which further gives the males better opportunities in life more than the females. Alison *et al.* (2010) also confirmed that women generally have less access to employment. Obiageli *et al.* (2013) further attest to the fact that gender disparity gives the male child a higher privilege in education and life opportunities than the females. Thus, gender disparity will erupt gender digital divide. However, Oketola (2012) advocated for the need to reduce male dominance and maintain 50 – 50 balance in information communication industry.

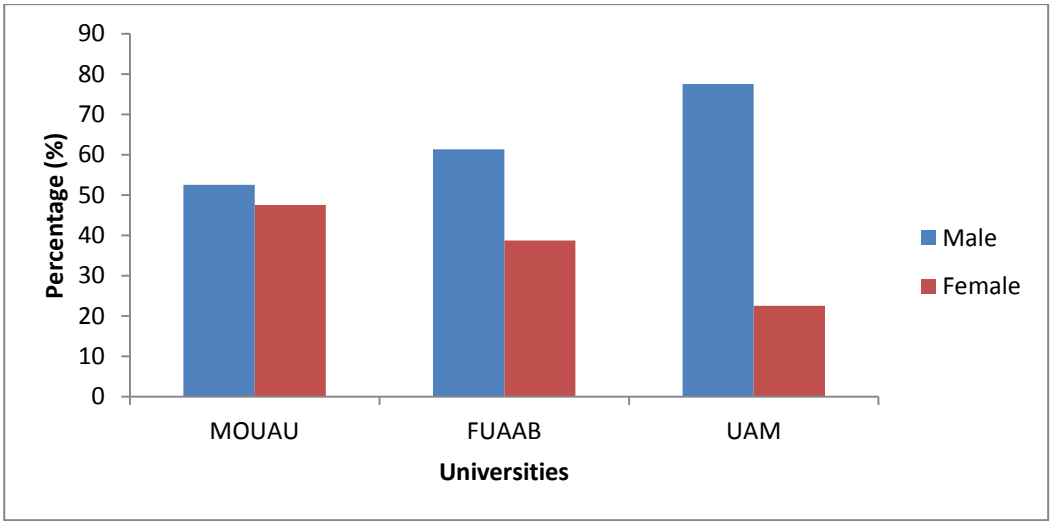

Fig. 2: Distribution of respondents based on gender in the Universities of Agriculture in Nigeria. Source: Field Survey 2014. *NB: Graph represent only the sampled staff*

Level of availability of ICT facilities in the study area

Table 1 revealed the level of availability of ICTs facilities in the study area.

The result showed that all the enlisted different types of ICT facilities were available in these Universities with the grand mean score of 2.76 greater than the decision rule of 2.5. It shows that these Universities accepted and integrated these facilities in order to facilitate information access derived from ICT based technologies. It also implies that Nigerian Government has placed higher preference on developing educational technology by creating awareness through information in building the nation. Most commonly available were multimedia resources, electronic databases, e-mail facilities, mobile cellular phones, computers (lap/desk tops); internet, Electronic Journal/books, social networks such as Facebook and twitter etc. This is in consonance with the findings of Agbnolar (2005), Sife *et al.* (2007) and Orimisan (2012) which clearly stated that ICTs are so increasingly accepted and integrated in teaching, learning and research activities in the Universities both locally and internationally so as to promote content development and sharing among the member institutions. Pooled means (x) were used to determine the most available ICT facilities in these institutions. The result shows that mobile phone (3.59), Computer: laptop/desktops (3.59), Internet (3.31) and Social Network (3.14) were the first-three ICTs facilities highly available to male and female respondents, while video conferencing (1.73) was the least available. It also implies that these scientists are only conversant with the ICT facilities that they make use of in their daily activities and found them worth while in generating research information particularly with those that would be of help in turning out their research outputs.

Table 1: Distribution of respondents based on the availability of ICTs facilities in the three Universities

S/N		MOUAU	FUAAB	UAM	Pooled mean scores
1.	Multimedia Resources	2.43	3.65	2.53	2.87
2.	Electronic Database (Agora TEEAL)	2.27	3.15	2.75	2.72
3.	Electronic Bulletin Board Service	1.74	2.56	1.89	2.06
4.	E-mail Facilities	2.97	2.83	3.47	3.09
5.	Mobile Cellular Phones	3.58	3.59	3.6	3,59
6.	Computers: Lap/Desktops	3.57	3.69	3.51	3.59
7.	Internet	3.16	3.44	3.43	3.31
8.	Electronic Journal/Books	2.38	3.11	2.10	2.53
.9	Geographical Information System (GB)	1.75	2.54	1.18	2.03
10.	Video Conferencing	1.84	2.02	1.34	1.73
11.	Interactive Board	2.98	2.28	2.16	2.47
12.	Social Network (Facebook, Twitter eg my space)	2.91	3.26	3.25	3.14
	Grand Mean	**2.63**	**3.01**	**2.65**	**2.76**

$\bar{X} \geq 2.5$ = highly available. Source: Field Survey, 2014

Respondents' Knowledge level of ICT

Table 2 shows that the respondents were knowledgeable in at least one or more ICT facilities at their disposal with mean scores of more than 2.50. Although the knowledge acquired differs in male and female respondents, the mean (x=2.76) for men tended to be higher than their female counterparts (x=2.70) which can be attributed to women having lesser interest in ICT uptake as compared to their male counterparts. This is in agreement with the findings of Heyzer (2007) who reported that males exhibit high level of interest in ICTs than females. In terms of knowledge of different ICT components, the males exhibited high knowledge of ICT than the females in Computer (x=3.56), Internet (x=3.26), Social Network (x=3.13), Electronic Journals/Books (x=2.89), Multimedia resources (x=2.67), and Electronic databases (x=2.60). However, the females were at their best in the knowledge of mobile cellular phones (x=3.68) while at the same time had the same interest/ knowledge with the males in the knowledge of e-mail (x=3.54). By implication, it shows that male and female differ significantly in many ways in terms of ICT-related matters and have different levels of knowledge. Thus, Thas *et al.* (2007) in their report observed that women are more inclined towards ICTs that are more audio in nature. The result further showed that both males (x=3.12) and females (x=2.95) from University of Agriculture, Abeokuta had more knowledge than respondents from the other two Universities which could be as a result of in- service training received. From the foregoing, it is pertinent to note that the researchers considered the benefits derivable from the applications of ICTs which include among others improvement in communication effectiveness and fastness in service delivery.

Table 2: Gender distribution according to their level of ICT knowledge and knowledge gained

S/N		MOUAU		FUAAB		UAM		Pooled mean scores for males and females	
	Variable	M	F	M	F	M	F	M	F
1.	Multimedia Resources	2.40	2.18	3.26	3.29	2.35	2.44	2.67	2.64
2.	Electronic Database (Agora TEEAL)	2.14	1.89	3.06	3.06	2.59	2.44	2.60	2.46
3.	Electronic Bulletin Board Service	1.76	1.73	2.51	2.32	2.09	1.88	2.12	1.98
4.	E-mail Facilities	3.33	3.47	3.81	3.83	3.48	3.33	3.54	3.54
5.	Mobile Cellular Phones	3.76	3.81	3.71	3.61	3.46	3.61	3.64	3.68
6.	Computers: Laptops/ Desktops	3.42	3.52	3.75	3.45	3.51	3.38	3.56	3.45
7.	Internet	3.30	3.42	3.73	3.25	3.48	3.11	3.50	3.26
8.	Electronic Journal/Books	2.45	2.28	3.32	2.16	2.90	2.55	2.89	2.33
9	Geographical Information System (GIS)	1.64	1.57	2.34	2.22	2.17	2.05	2.05	1.95
10.	Video Conferencing	1.88	1.86	2.26	2.54	1.85	1.72	1.20	2.04
11.	Interactive Board	2.45	2.39	2.34	3.16	1.91	1.66	2.23	2.40
12.	Social Network (Facebook, Twitter, My space)	3.10	2.86	3.34	2.54	2.95	2.77	3.13	2.72
	Grand mean	**2.64**	**2.58**	**3.12**	**2.95**	**2.73**	**2.58**	**2.76**	**2.70**

$\bar{X}$ ≥ 2.5 = highly available. Source: Field survey 2014

Comparison of the Number of hours spent in ICT (level of ICT uptake) between male and female scientists in the study area

The level of ICT uptake between male and female scientists in the study area was compared using Z – test statistics. Table 3 revealed that 66.6% of the males ($\bar{x}$ = 36.9826) had ICT uptake ranging between 51 – 100%, while the females had 13.3% ($\bar{x}$ = 19.3083).

Table 3: Pooled mean difference between male and female Research Scientists in ICT uptake in the study area

Variables	Individual Mean	Pooled Mean	Std Deviation	df	Z-cal	Ztab
ICT Uptake(Male)	36.9826					
		17.67429	28.07735	152	7.786	1.645
ICT Uptake(Female)	19.3083					

***P ≤ 0.05. Source: Field Survey, 2014**

Table 4: Hours spent on ICT uptake between male and female scientists

Level of uptake (%)	Males		Females	
	Frequency	%	Frequency	%
1 – 25	9	5.9	32	36.8
26 – 50	42	27.5	43	49.4
51 – 75	79	51.6	9	10.3
76 – 100	23	15.0	3	3.0
Total	153	100	87	100

NB: Hours spent converted to percentage to get level of uptake

On the other hand, there were more females between the ranges of 1 – 50 (86.2%) than males in the same range limit. This signifies that female scientists had less than the average in ICT uptake, while the males had a higher level of ICT uptake when compared. It could be deduced that the reason for the difference in ICT uptake could be the premonition that males are quick at accepting new innovation, as well as having anxiety to know more about information technology than females. This statement corroborates the findings of Okeke and Ejiofor, (2011), which states that males have higher computer anxiety and information technology knowledge than women. In addition the Z-cal for ICT uptake for males and females was 7.786 while the Z-tab was 1.645 at 5% level of significance which showed that there is a significant difference between male and female scientists in ICT uptake.

Relationship between gender and ICT uptake in the study area

In order to ascertain the relationship between gender and ICT uptake, Pearson Moment Correlation was used and presented in Table 5.

Table 5: Relationship between gender and ICT uptake

Variables	ICT Uptake	Gender
ICT Uptake	1	0.459**
Gender	0.459**	1

****p ≥ 0.01 Source: Field survey, 2014**

Table 5 shows that there is a significant relationship between gender and ICT uptake. In addition, the correlation coefficient of 0.459 shows that there is about 46 percent degree of relationship existing between gender and ICT uptake in the study area. Thus, the null hypothesis is rejected and the alternate hypothesis accepted.

CONCLUSION

Gender inequality is a feature that has to be revisited from time to time. This is because it creates bias in the way people relate to each other, especially opposite sexes. In the view of the study, females were disadvantaged in terms of employment, knowledge and spent on ICT. Opportunities and encouragement should be given to the females in all areas of life so as to enable them excel in their own areas of specialty. This would help them in their capacity building.

REFERENCES

Akinpelu, O.M., Akinbile, L.A.; Ayeloja, A.A.; Akinosho, G.A.; George, F.O.A.; Jimoh, W.A. and Adebisi, G.L. (2013). Gender differentials in Knowledge and utilization of ICT among fish farmers in Ido L.G.A. of Oyo state, South- Western Nigeria. Journal of Agricultural Economics and Development Vol. 2(6) pg 255-263

Ame, F.O. (2013). Gender equality in educational opportunities for National Development: International Journal Gender and Development Issues vol. 1 N0 1 May, 2013 pg 13 – 17.

Binta, I.Z. (2005). Issues of access and equality of education to the girl-child in the development of education sectors in Borno State, In Akpa, G.O. (ed) Deregulating the provisions of education in Nigeria NAEAP.

Eze, D. (2012). Gender, human rights and challenges of HIV/AIDS, Enugu Community and Social Development Project News (1).

Federal Republic of Nigeria (2006): National gender policy, Abuja: Federal Ministry of Women Affairs and Social Development.

Hajara, U. S. and Mustapha H. K. (2013). Gender and ICTs in Nigeria; Challenges and prospects: Global journal of human social science, sociology and culture. vol. 13 Isssue 6 Version 1.0 .ISSN: 0975-587X

Heyzer Noeleen (2007). Gender and ICT. Asia-Pacific Development Information Programme e-primers for the Information Economy Society and Polity (eds) Angela M. Kuga Thas, Chat Garcia Ramilo and Cheekay Cinco foreword by Noeleen Heyzer. pg vii-viii.

Mbakwem J.N (2007). Gender Balancing: The missing factor in sustainable development in Nigeria. Journal of Women in Academics (JOWACS): ISSN 1595-6091.Vo 4.No.2.Published by National Association of Women in Academics (NAWAS); pg.93-109.

Munyua, Hilda (2007). ICTs and Small-Scale Agriculture in Africa: A Scoping Study. Final Report prepared on behalf of International Development Research Centre (IDRC) Pg. 2.

Okeke, J.N. & Ejiofor C.I. (2011). Gender difference in Acceptance and use of Information Technology across different religious and cultural settings: Challenges for Sustainable Development Journal of International Gender Studies (JIGS). An Annual publication of the International Association For Gender Equity (IAFGE). ISSN: 0795 – 3909 Nos 7. June

Thas, A.M., Ramilo, C.G. and Cinco, C. (2007). Gender and ICT Asia Pacific Development Information Programme, Primers for the Information Economy Society and Polity.

Wegh, F.S. (2008). Gender Analysis in Agricultural Production in Tiv Society. In Gender Issues in Agriculture and Rural Development, Proceeding of the First National Conference of the Society for Gender in Agriculture and Rural Development held at the University of Agriculture, Makurdi, Benue State, Nigeria (May 26-28) (eds) M.O. Obasi, E.P. Ejembi, J.B. Ayoola and E.F. Adebayo. Pg. 158-163