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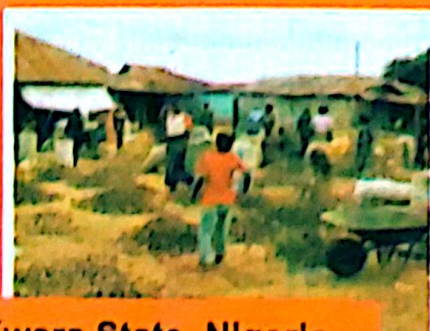
PROCEEDING OF THE

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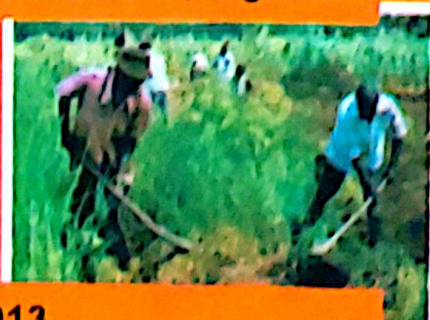
(ILORIN 2013)

THEME:

NIGERIAN AGRICULTURE AND ECONOMIC DEVELOPMENT: THE WAY FORWARD



Venue: Main Auditorium, University Of Ilorin, Kwara State, Nigeria.



Date: 26th - 30th August, 2013

Edited By: Omotesho O.A., Adewumi M.O., Ogunlade I., Fawole O.B.,
Babatunde R.O., Ayinde O.E. and Muhammad-Lawal A.

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ASSESSMENT OF PERSONAL DEVELOPMENT IN THE USE OF SOCIAL MEDIA AMONG AGRICULTURAL EXTENSION STUDENTS IN TWO NIGERIAN UNIVERSITIES

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ABSTRACT

Aside from aiding learning and research, the use of electronic communication technologies can prepare agricultural extension students for its use as agricultural extension officers in sourcing and disseminating agricultural information. The study examined the use of 20 social media among agricultural extension students in selected Nigerian universities. Specifically, it assessed the levels of awareness and use of the technologies. The relationship between selected socio-economic characteristics and use of the social media as well as the constraints militating against their use were investigated. Data was collected from 120 randomly selected students using a structured questionnaire. The analytical tools employed for the study included descriptive statistics and the linear regression analysis. A four point Likert type scale was used to examine the extent of use. The study revealed a low level of awareness for four (wii 35%, Tivo 34.2%, Napster 29.0% and Craiglist 39.2%) of the social media investigated. Text messaging, Twitter, facebook, blackberry, and e-mail were the most used social media. High cost, financial constraints, complexity and distraction from study were the notable constraints to their use. Age, Number of years spent in the university, monthly upkeep allowance and ownership of laptop/ipad/smartphones significantly influenced the level of use. The study recommended increased use of Social media by students and lecturers in Nigerian universities. It suggested that free wireless internet services should be deployed on all university campuses with intense campaign on possible side effects of wrong use of social media.

Keywords: Personal Development, Electronic Technologies, Social Media, Agricultural Extension Students, Nigerian Universities.

INTRODUCTION

Knowledge and information has been recognized as factors of development having become major drivers of social and economic transformation (Nwachukwu et al. 2009; Asenso-Okyere and Mekannon 2012). The eventual usefulness of these vital elements of development is made possible by communication which ensures that they are shared or transferred (FAO 1999). Although various means of communication existed and were used before the advent of electronic technology, globalization, modernization and streamlining paradigms have made it unwise and sometimes even impossible to ignore information and communication technology (ICT). Omotesho et al, 2012 opined that ICT has changed the face of communication, transforming the world into a global village due to its timely, cost effective and seamless nature of information flow via various media. The Internet service which came to be with the introduction of modern ICT, resulted in the proliferation of social media. These are two-way conversations through the sharing of print, photos, video and audio primarily hosted on the internet. (Riesse et al., 2010). It encompasses a wide series of websites and tools which create an avenue for users to interact. (Boyd and Ellison, 2007). According to Acar, 2008, social media has become a huge integral

component of how people spend their time. Agricultural extension involves the conscious use of information communication to and from farmers on agricultural policies; programs, research and education to help farming stakeholders identify and analyze agricultural production problems, identify opportunities for improvement and enable formulation of sound opinions and good decisions. The overwhelming importance of communication and indeed a well articulated communication system to the success of agricultural extension has been emphasized by several authors (FAO, 2000; Owigbo et al. 2009). The potentials of ICT therefore in agricultural extension is unassailable and if properly harnessed, will bring about a revolution to extension service delivery particularly in developing countries (CTA, 2003; Meera et al, 2004; Arokoyo, 2005; Salau and Saingbe, 2008; Nhadi et al, 2012) The seamless and instantaneous nature of communication via social media, alongside its wide adoption therefore positions it as a veritable tool for agricultural extension use. Universities play a strategic role as centers of creative undertakings, innovations and inventions in building up a country's capacity in various disciplines in an increasingly knowledge based global economic environment (Jega, 2007; Nweze, 2010). All over the world,

educational systems are under increasing pressure to take advantage of the new ICTs in teaching, learning and research to bring about educational reforms (UNESCO, 2002; Tinio, 2001). Agricultural science lecturers and students specifically benefit from agricultural science databases on the Internet, such as Access to Global Online Research in Agriculture (AGORA), Agricultural Online Access (AGRICOLA), and Agricultural Information System (AGRIS), that provide current research information for agricultural scientists across the globe. Furthermore, the facilities offered by the Internet like, the various social media could be explored by agricultural scientists. (Jibril and Afolabi, 2012). Sokoya et al. opined that agricultural researchers have caught a glimpse of the role that social media can play in establishing connections and facilitating the dissemination of agricultural information.

However, In spite of knowledge about the role that ICT generally can play in agricultural extension, studies have revealed a poor level of its awareness and usage among agricultural extension workers in various parts of Nigeria (Adebayo and Adesope 2007; Ndag et al, 2008; Ovwigho et al, 2009; Adejo and Haruna, 2009; Omotosho et al, 2012). Being potential agricultural extensionist, it is important that agricultural extension students are conversant with, and versatile in the use of various ICTs which will eventually prove useful to them in the future discharge of their duties as agricultural extension agents. While some studies have investigated ICT usage among university students in general, there is dearth of scientific information on the level of awareness and usage of social media particularly among agricultural extension students. This study therefore examined personal development in the use of selected social media among agricultural extension students in selected Nigerian universities. Specifically, the study:

- Ascertained the level of awareness of selected social media among the students;
- Determined the level of usage of the social media;
- Assessed the relationship between selected socio-economic characteristics of the students and their Usage of social media and;
- Identified the constraints faced by the students in the usage of the social media.

METHODOLOGY (The Study Area)

The study was carried out in two Nigerian universities namely; The University of Ilorin (Unilorin) and The Federal University of Agriculture, Abeokuta (FUNAAB). The two institutions selected represent the conventional and the specialized Nigerian universities respectively. Founded in 1975, The University of Ilorin comprises of 10 faculties and

a college of medicine. The Faculty of Agriculture was established in the 1982/83 session and is presently has seven departments. The Faculty issues a Bachelors degree in Agriculture (B. Agric) with limited specialization only in the final year when students are allowed to major in any of; Agricultural Economics and Farm Management, Agricultural Extension and Rural Development, Animal Production, Agronomy and Crop Protection. From inception, the faculty has graduated over 2000 students. The Faculty has about 77 members of staff and over 1000 students enrolled for the 2001/2012 session. The Federal University of Agriculture, Abeokuta was established on 1st of January, 1988 as one of the first two Federal Universities of Agriculture to be established in Nigeria. It has eight colleges of which the College of Agricultural Management and Rural Development is one. The Department of Agricultural Extension and Rural Development was established in 1983 and it had about 427 students enrolled for the 2011/2012 session.

Sampling Technique

The population for the study comprised of all registered students of the Faculty of Agriculture, Unilorin and Department of Agricultural Extension and Rural Development, FUNAAB duly registered for the 2011/2012 academic session. A random selection of 120 respondents was drawn from the selected Universities based on the list of registered students for the 2011/ 2012 session. Data for the study was obtained with the use of a structured questionnaire.

Analytical Technique

Descriptive statistics involving frequency counts, percentages and means were used in analyzing and presenting the socio-economic characteristics of the respondents and the level of awareness of the selected Social media. A four point likert- type scale was used to analyze the level of usage. Respondents were requested to indicate their levels of usage on a scale of one to four graduated as follows;

Never =1, occasionally =2, frequently =3, Very frequently = 4

The relationship between selected socio-economic characteristics of the respondents and their usage of the social media was investigated using the linear regression model. The variables were measured as follows;

Dependent variable = Usage of social media (measured by mean score obtained from the likert-type scale)

Independent variables;

Age- measured in years

No of years spent in the university measured in years

Gender – Dummy variable taken as 1 for male and 0 for female
 Institution- Dummy variable taken as 1 for Unilorin and 0 for FUNAAB
 Respondents' upkeep allowance in Naira

Possession of laptop/smart phone -1 for yes, 0 otherwise

The extent to which respondents consider specific factors as constraints to their usage was also captured by a five point likert-type scale which was rated as follows:

Strongly agree = 1, Agree = 2, Indifferent = 3, Disagree = 4, strongly disagree = 5

RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

Table 1 presents selected socio-economic characteristics of the respondents.

Table 1: Selected Socio-economic Characteristics

VARIABLES	FREQUENCY	PERCENTAGE
Age		
≤ 20	31	25.8
21-25	66	55.0
26-30	21	17.5
> 30	2	1.7
Total	120	100.0
Gender		
Male	64	53.3
Female	56	46.7
Total	120	100.0
No of Years Spent		
1	16	13.3
2	22	18.3
3	15	12.5
4	17	14.2
5	50	41.7
Total	120	100.0
Monthly Upkeep Allowance (₦)		
< 10,000	70	58.3
10,000-20,000	37	30.8
>20,000	13	10.8
Total	120	100.0
Possession of Laptop, Tabs, Smart phone or Ipad		
Yes	72	60
No	48	40
Total	120	100.0

Source: Field survey, 2012

Table 1 reveals that with 55 percent, the modal age group among the respondents was 21-25 years. While 25.8 percent of them were below 20 years of age, less than 20 percent of the respondents were above 25 years old. Majority (53.3%) were male, while about 42 percent were in their fifth year of university education. The table also show that 58.3percent of the respondents enjoyed below ₦10,000as their monthly upkeep allowance while only about 11% had monthly upkeep allowances of above ₦20,000. Sixty percent of the respondents possessed laptops, Ipads, tabs and/or smart phones while the remaining 40 percent did not possess any of the 4.

Awareness of Selected ICTs

Table 2 shows the levels of awareness of selected ICTs among the respondents

Table 2: Respondents' Awareness of Selected ICTs

S/N	ICT	F	%	S/N	ICT	F	%
1	Blackberry			11	Blogs		
	Yes	119	99.2		Yes	114	95.0
	No	1	0.8		No	6	5.0
	Total	120	100.0		Total	120	100.0
2	Twitter			12	Napster		
	Yes	118	98.3		Yes	35	29.2
	No	2	1.7		No	85	70.8
	Total	120	100.0		Total	120	100.0
3	Craigslist			13	Digg		
	Yes	47	39.2		Yes	81	67.5
	No	73	60.8		No	39	32.5
	Total	120	100.0		Total	120	100.0
4	LinkedIn			14	RSS		
	Yes	110	91.7		Yes	103	85.8
	No	10	8.3		No	17	14.2
	Total	120	100.0		Total	120	100.0
5	EBay			15	Skype		
	Yes	73	60.8		Yes	93	77.5
	No	47	39.2		No	27	22.5
	Total	120	100.0		Total	120	100.0
6	E-mail			16	Text Messaging		
	Yes	117	97.5		Yes	119	99.2
	No	3	2.5		No	1	0.8
	Total	120	100.0		Total	120	100.0
7	Facebook			17	TiVo		
	Yes	117	97.5		Yes	41	34.2
	No	3	2.5		No	79	65.8
	Total	120	100.0		Total	120	100.0
8	Flickr			18	Google Talk		
	Yes	8520	70.8		Yes	101	84.2
	No	35	29.2		No	19	15.8
	Total	120	100.0		Total	120	100.0
9	Reddit			19	Windows life messenger		
	Yes	55	45.8		Yes	42	35.0
	No	65	54.2		No	78	65.0
	Total	120	100.0		Total	120	100.0
10	Whatsapp			20	YouTube		
	Yes	100	83.3		Yes	98	81.7
	No	20	16.7		No	22	18.3
	Total	120	100.0		Total	120	100.0

Source: Field Survey, 2012 Frequency (F), Percentage (%)

As shown in Table 2, blackberry services and text messaging were the social media with the highest levels of awareness with over 99 percent of the respondents confirming their awareness of them. Twitter, facebook, e-mail blogs and LinkedIn followed closely in level of awareness with all five recording over 90 percent. On the average, the level of awareness of different social media among the respondents is high. Fifteen of the 20 social media investigated had over 60 percent level of awareness. Banneke and Osoe (2012) also reported a high level of awareness in a similar study carried out among agricultural researchers in South West Nigeria. The respondents were least aware of Reddit (45.8), Craigslist (39.2), Windows live messenger (35.0), TiVo (34.2) and Napster (29.2)

Levels of Usage of Selected ICTs

Table 3: Levels of Usage of Selected ICTs among the Respondents

Variables	Very	Frequently	Occasionally	Never	Mean	St Dev	Rank
Blackberry	Frequently 68 (56.7%)	26 (21.7%)	13 (10.8%)	13 (10.8%)	3.24	1.029	4
Twitter	74 (61.7%)	32 (26.7%)	14 (11.7%)	0 (0%)	3.50	0.698	2
Craigslist	6 (5.0%)	14 (11.7%)	15 (12.5%)	85 (70.8%)	1.51	0.889	18
LinkedIn	45 (37.5%)	34 (28.3%)	28 (23.3%)	13 (10.8%)	2.93	1.022	7
Ebay	5 (4.2%)	16 (13.3%)	29 (24.2%)	70 (58.3%)	1.63	0.869	16
E-mail	46 (38.3%)	52 (43.3%)	18 (15.0%)	4 (3.3%)	3.17	0.803	5
Facebook	74 (61.7%)	31 (25.8%)	11 (9.2%)	4 (3.3%)	3.46	0.798	3
Flickr	12	13 (10.8%)	31 (25.8%)	64 (53.3%)	1.78	1.000	15
Reddit	(10.0%)	16 (13.3%)	15 (12.5%)	73 (60.8%)	1.79	1.114	14
Whatsapp	16 (13.3%)	46 (38.3%)	22 (18.3%)	25 (20.8%)	2.62	1.051	8
Blogs	27 (22.5%)	59 (49.2%)	19 (15.8%)	8 (6.7%)	2.99	0.845	6
Napster	34 (28.3%)	7 (5.8%)	8 (6.7%)	101 (84.2%)	1.28	0.724	20
Diggs	4 (3.3%)	19 (15.8%)	40 (33.3%)	43 (35.8%)	2.10	1.056	13
RSS	18 (15.0%)	26 (21.7%)	52 (43.3%)	26 (21.7%)	2.27	0.950	12
skype	16 (13.3%)	27 (22.5%)	31 (25.8%)	31 (25.8%)	2.48	1.137	9
Text messaging	31 (25.8%)	19 (15.8%)	13 (10.9%)	0 (4.2%)	3.58	0.795	1
Ti Vo	88 (73.3%)	2 (1.7%)	20 (16.7%)	88 (73.3%)	1.45	0.887	19
Google Talk	10 (8.3%)	48 (40.0%)	34 (28.3%)	24 (20.0%)	2.43	0.941	11
Windows live messenger	14 (11.7%)	10 (8.3%)	23 (19.2%)	80 (66.7%)	1.53	0.879	17
YouTube	7 (5.8%)	42	35	24	2.47	0.987	10
	19 (15.8%)	(35.0%)	(29.2%)	(20.0%)			

Source: Field survey 2012

Table 3 reveals that the most frequently used social media among the respondents is text messaging with a mean score of 3.58. This is followed by Twitter (3.50), Facebook (3.46), Blackberry (3.24) and e-mail (3.17). The social media with the least frequencies of usage and all with means scores of below 2 are Napster (1.28), TiVo (1.45), Craigslist (1.51), Windows live messenger (1.53), Ebay (1.63) and Flickr (1.78). It can also be seen from the table that all the respondents (100%) use text messaging and twitter while only 3.3 percent have never used the e-mail and facebook. It is also important to note from the table that, although not all the social media were used regularly, the four most frequently used ones i.e text messaging, twitter, facebook and blackberry were very frequently used by more than half of the respondents. Relationship between Selected Socio-economic Characteristics of the Respondents and their Usage of Selected ICTs

The result of the linear regression analysis to determine the relationship between socio-economic characteristics and usage of selected ICTs is shown in Table 4.

Table 4: Determinant of Social Media Use among the Respondents

VARIABLES	Co-efficient	P-V/ALUE
Constant	12212.360	.325
Age	3641.216***	< 0.01
Gender	0.701	.685
Religion	1.029	.821
Upkeep Allowance	0.490***	< 0.01
No of years spent in University	3.644*	.071
Ownership of laptop/pad etc	2.046***	< 0.01

Source: survey 2013 *** (1%), * (10%)

Table 4 shows that age, monthly upkeep allowance, ownership of laptop/pad/smartphones and number of years spent in the university were the determinants of use of social media among the respondents. While age, monthly upkeep allowance, ownership of laptop/pad/smartphones were significant at $P < 0.01$, Number of years of university education was significant 10 percent level of significance. The positive coefficient indicates a direct relationship between the variables and use of social media. The older the respondents and the longer the respondents stay in the

university, the higher their level of use. The fact that use of social media increased with amount of respondents monthly upkeep allowance may be due to the financial implication of acquiring the hardware requirements and the internet access subscription charges. It can be expected that respondents with higher monthly allowance will be able to afford the costs involved. Also respondents that own laptops, Ipads, smartphones e.t.c have better access and are hence higher level of use. Banmke and Oose, 2012 reported that only years of experience and marital status significantly influenced the use of social media among agricultural researchers in South West Nigeria.

Constraints to ICT Usage among Respondents

Table 5: Constraints against the Usage of the Selected ICTs among the Respondents

VARIABLES	Strongly Agree					Disagree					Mean	St Dev	R
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree			
Poor access (due to financial constraints)	17 14.2%	91 75.8%	5 4.2%	7 5.8%	0 0%	3.98	0.648	2					
Poor technical know-how	28 23.3%	71 59.2%	5 4.2%	15 12.5%	1 0.8%	3.92	0.922	5					
High Subscription charges e.g. Blackberry	27 22.5%	60 50.0%	8 6.7%	23 19.2%	2 1.7%	3.72	1.069	6					
High cost of maintenance	40 33.3%	54 45.0%	7 5.8%	15 12.5%	4 3.3%	3.93	1.094	4					
Poor level of awareness	35 29.2%	34 28.3%	5 4.2%	32 26.7%	14 11.7%	3.37	1.437	8					
Distraction from studies	36 30.0%	62 51.7%	6 5.0%	14 11.7%	2 1.7%	3.97	0.987	3					
Too much time is exhausted / It is time taking	46 38.3%	53 44.2%	6 5.0%	11 9.2%	4 3.3%	4.05	1.052	1					
Other reasons (moral, religious beliefs etc)	24 20.0%	0 0%	96 80.0%	0 0%	0 0%	3.40	0.803	7					

Source: survey 2013

Table 5 reveals eight constraints faced by the respondent in the use of social media. Insufficient time with a mean score of 4.05 was the most prominent constraint to the use of social media among the respondents. However, While 82.5 percent of the respondents agree that insufficient time is a constraint, a higher percentage (90%) agree to financial constraints in terms of acquisition of required hardware. Other constraints in order of severity are poor access, distraction from studies, high subscription cost, poor technical know-how, poor electricity supply, moral and religious beliefs and poor level of awareness. Poor level of awareness was the least severe of the constraints. Other constraints mainly bothering on the moral and religious implications of negative use of social media was also pointed out by 20 percent of the respondents. This finding is similar to reports from a study of barriers to use of social media among agricultural educators in Wisconsin (Fuess, 2011).

CONCLUSION AND RECOMMENDATION

A high level of awareness was observed for most of the social media investigated. Text messaging, Facebook, blackberry and e-mail were the social

media in most use while a poor level of use was observed for napster, Tivo, craigslist, windows live messenger, Ebay and Flickr. The study also ascertained that age, monthly upkeep allowance, number of years spent in the university and ownership of required hardware component were determinants of use among the respondents. Inadequate time, financial constraint, negative impact on academic pursuit, high cost, technical know-how, poor electricity, moral and religious beliefs were the constraints to social media use.

The following recommendations are put forward based on the findings of the study:

Basic training in ICT should be included in general studies (GNS) for new intakes into the universities. The various social media should be further explored as tools of effective communication even for official information in universities. Free wireless internet services should be deployed on all university campuses. There is the need for intense campaign on university campuses emphasizing the positive uses and possible side effects of wrong use of social media.

REFERENCES

- Acar, A. (2008): Antecedents and Consequences of Online Social Networking Behavior: The Case of Facebook. *Journal of Website Promotion*, 3(1/2), 62-83. doi:10.1080/15533610802052654
- Adebayo, E.L and Adesope, O.M (2007): Awareness, access and usage of information and communication technologies between female researchers and extensionists. *International Journal of Education and Development using Information and Communication Technology* 3 (1)85-93
- Adejo, P. E and Haruna, U.(2009): Access of Farmers to ICTs for Agricultural Development in Bauchi Local Government Area, Bauchi State. *Proceedings of the 43rd Annual Conference of the Agricultural Society of Nigeria, Abuja* 704-707.
- Arokeyo, T. (2005): ICTs application in Agricultural Extension service delivery. In: Adedoyin, S.F (ed) *Agricultural Extension in Nigeria* Ilorin: Agricultural Extension Society of Nigeria.
- Asenso-Okyere, K. and Mekonnen, D. A. (2012): The Importance of ICTs in the Provision of Information for Improving Agricultural Productivity and Rural Incomes in Africa. Working Paper; UNDP. 30pp
- Banneke, T.O and Oose, M.O (2012): Assessment of the Use of Social Network Tools (SNTs) By Agriculture Researchers in South West Nigeria. *Communications of the IIMA*, 12(3) 35-49
- Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1). Retrieved from http://jcmc.indiana.edu/vol13/issue1/boyd_ellison.html
- CTA 2003: Technical Centre for Agricultural and Rural Cooperation (CTA) (2003) *Spore*. Issue no. 99
- FAO 1999: The Role of Information and Communication Technology in Rural Development and Food Security. <http://www.fao.org/sd/edirect/edre0055d.htm>
- FAO 2000: The Role of Information and Communication Technologies (ICTs) in the Improvement of Agricultural Value Chains. *Policy Brief is based on the Input of e-Agriculture in the online forum held from 26 July to 6 August, 2010. <http://agriculture.org/forum/archives>*
- Jega, A. M. (2007): The public university and national development in a globalised world: *role relevance and prospects*. The 45th Anniversary lecture, organised by Obafemi Awolowo University (OAU), Ile-Ife, Dec. 13 pp. 1-32.
- Jibril, A. A and Afolabi, M. (2012): The Use of Information and Communication Technology in Agricultural Research in Nigerian Universities *PNI:A Quarterly*, 76 (3) 150-160
- Lucas, C. F (2011): An Analysis and Recommendations of the Use of Social Media within the Cooperative Extension System: Opportunities, Risks, and Barriers. Honors Thesis Presented to the College of Agriculture and Life Sciences, Social Sciences of Cornell University in Partial Fulfillment of the Requirements for the Research Honors Program
- Meera, S. N., Jhamtani, A., and Rao, D. U. M. (2004): Information and communication technology in Agricultural development: a comparative analysis of three projects from India. *Agricultural Research and Extension Network Network Paper No 135, 13pp*
- Ndag, I, Sanusi R. A. and Aigbekan E. O. (2008). Comparative Analysis of Information and Communication echnology (ICT) use by Agricultural Extension Workers in South-west and North-central Nigeria. *Proceeding of the 19th Annual International Information Management Association*. pp. 35-40.
- Nnadi, F.N., Chikaire, J., Atoma, C.N., Egwunonu, H.A. and Echetama, J.A (2012) 1st for Agriculture Knowledge Management in Nigeria: Lessons and Strategies for Improvement. *Science Journal of Agricultural Research & Management* Volume 2012, Article ID sjarm-192, 8 Pages. 2012 doi: 10.7237/sjarm/192
- Nweze, C. M. T. (2010): Undergraduate library Instruction in Nigerian Universities - A case study of Hezekiah Oluwasanmi Library" *Library Philosophy and Practice* 14p
- Owigho, B. O., Ife P. A., Ayobo, R. I and Abo, E. I.(2009). The Availability and Use of Information Communication Technologies by Extension Agents in Delta Agricultural Development Project, Delta State Nigeria" *Journal of Human Ecology* 27 (3) 185-188
- Riese, M., Pennisi, L.A and Lee, A (2010) Using Social Media to Market your Business. IANR. Available online at <http://extension.unl.edu/publications>
- Salau E.S. and N.D. Sangbe (2008): Access and Utilization of Information and Communication Technologies(ICTs) Among Agricultural Researchers and Extension Workers in Selected Institutions in Nasarawa State of Nigeria. *PAT 2008*, 4(2)1-11.