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COMPETENCE AND INTERNET USAGE AMONG AGRICULTURAL EXTENSION WORKERS IN DELTA AND EDO STATES, NIGERIA

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Abstract

The purpose of the paper was to identify the competence level in internet usage among agricultural extension workers is required for assessing effective information dissemination between agricultural extension workers and farmers in Delta and Edo States in Nigeria. This will be useful in improving the productivity of farmers. To solve the proposed topic, it was a paired t-test was used to determine the difference in the competence of agricultural extension in Delta and Edo States, Nigeria. We find that significant difference ($t= 6.968$ $p\leq 0.05$) exists in the competence between agricultural extension workers in Delta (Mean =26.59) and Edo States (Mean = 35.48) at $p\leq 0.05$. Respondents recorded high competence level only in searching for research based information with a mean of 2.69 and 3.10 for respondents in Delta and Edo States, respectively. Unstable power supply, unavailability of internet facilities in offices and poor connectivity among others were most significant constraints that hinder the usage of internet related activities. The limited number of agricultural extension workers in the study areas was a major limitation. The few extension workers were difficult to locate and this make data collection unnecessarily time consuming. Agricultural extension workers may find internet useful in sourcing and processing information. However, their competence level in the use of internet in Nigeria is unknown.

Key words**:** *competency, internet related activities, extension workers*

INTRODUCTION

Internet penetration in Africa has been gathering pace over the last half-decade, as the continent seeks to close Information and Communication Technology (ICT) gap with the western world. To further confirm this trend, three African countries have made the world's top 25 countries by internet users (2013 – 2018) (source). This growth is expected to continue over the next five years. Nigeria, the Africa's most populous country, is ranked 10th on the list of world's top internet users, according to eMarketer with 57.7 million users at the end of 2014, which is predicted to rise to 84.3 million by 2018 (Internet Live Stats, 2008) [4]. Nigeria is a nation that needs to grow agriculturally. The growth of agricultural sector will reduce food importation, increase exportation and ensure that the nation is food secured. For this growth to happen the communications infrastructure should be able to meet the demands of modern day life and reliable connections are the key to this growth.

The use of internet can be very useful in promoting the said growth. Internet platform can be used by agricultural extension agents to seek new ideas that could be useful to their clientele. Salau and Saingbe (2008) [8] opined that frontline agricultural extension workers, who are the direct link between farmers and other stakeholders in the agricultural knowledge transfer and information management system should be well positioned to make use of internet to access expert knowledge and other types of information that could be beneficial to farmers. As a result of the numerous information resources on the internet, it is essential that extension services should be able to have better access to innovations. It will be fascinating if the agricultural extension workers can use the internet to access and exchange new ideas which could enhance the extension service

delivery thereby improving farmers' knowledge about agricultural technologies and better their attitude towards innovation adoption. Despite the advantages of internet to research, many developing countries continue to have very low internet penetration rates (United Nations Reports, 2005) [9] and consequently the nation's goal in providing food security and self-sufficiency has not been attained. Meanwhile, there is an avalanche of information available in the internet to help boost the quality of extension service delivery. Is it that they lack the skill of accessing the internet or they are not accessing the information adequately? In light of this, this study was conducted to examine agricultural extension workers' competence in internet usage in sourcing for information that are disseminated to farmers with a view to increasing farmers' productivity in food production in Delta and Edo States, Nigeria. The study hypothesized that there was no significant difference in the competence of agricultural extension workers in Delta and Edo States, Nigeria.

MATERIALS AND METHODS

The study was conducted in Delta and Edo States of Nigeria. Multi stage sampling procedure was adopted for sample selection. The population of this study comprised of extension workers in the two States with similar coordinates and climate conditions. Each of the States has three Agricultural Development Programme zones. In the first stage, two Local Government Areas from each of the three ADP zones in the States were purposively selected based on level of rurality and intensity of farming, to make a total of twelve Local Government Areas. The population of the agricultural extension workers in the selected LGAs was five hundred and twenty (520), with Delta (180) and Edo (340). Krejcie and Morgan (1970) [5] sample size determination formula was used to determine the representative sample for the population to be 226. At the second stage simple random sampling was used to sample 226 respondents (136 from Edo and 90 from Delta). However, only about 125 and 75 copies of questionnaire used in Delta and Edo States were found analyzable. Thus, 200 respondents were used for the study. This forms a response rate of 88.5%. Data collected were analyzed using descriptive statistics such as means, frequency counts, percentages while logit and paired t-test were used to make inferences.

RESULTS AND DISCUSSIONS

Socio-Economic Characteristics of Respondents

Table 1 revealed that 52.80% of the respondents were male in Edo State while 53.33% were female in Delta State. This implies the low involvement of women in extension service delivery in Edo state as against Delta State where majority of the respondents were female. This result agrees with Omoregbee and Ajayi (2009) [7] which revealed that there were more male extension workers than female extension workers in extension services in Edo State. The mean age of the respondents was 40 and 48 years in Edo and Delta States respectively. This indicates that extension workers in the study area were predominantly young people who are still very active in their career. This finding is similar to that of Odoemelam and Alocha (2015) [6] who reported that extension workers within this age were in their active years and still have more productive years to put into the extension work. With regards to job experience, the result indicated that close to half of the respondent (45.60%) in Edo had a job experience of 11-20 years and in Delta States 45.33% had job experience of 21-30 years. This implies that the extension workers have the knowledge to analyze between how it was without internet and what the present scenario is with the use of internet. This finding agrees with that of Salau and Saingbe (2008) [8] who reported that extension workers in Nasarawa State had longer working experience. The result also revealed that half of the respondents(Edo = 59.20%, Delta = 49.33%) had a household size of between 5-8 persons The results suggest that the household size of respondents in Edo and Delta States are similar and perhaps increase

in the household size can negatively influence extension workers use of internet as they may tend to spend more time to the family needs. 56.80% of respondents in Edo State had B. Sc as their highest academic qualification and 58.67% of the respondents in Delta State had OND as their highest academic qualification. This means that most of the respondents were literate and that could contribute to their ability to use the internet. This finding conforms with that of Yakubu (2013) [10], who reported that extension agents in Kano State were literate and could utilize ICTs to improve their work as change agents.

Table 1. Distribution of the socio-economic characteristics of extension workers

		Edo		Delta		Total	
Socio-economic characteristics		Freq	%	Freq	%	Freq	%
Sex	Female	59	47.20	40	53.33	99	49.50
	Male	66	52.80	35	46.67	101	50.50
	Total	125	100.00	75	100.00	200	100.00
Age (range)	≤ 30	23	18.40	4	5.33	27	13.50
	31 – 40	43	34.40	6	8.00	49	24.50
	41 – 50	40	32.00	41	54.67	81	40.50
	51+	19	15.20	24	32.00	43	21.50
	Total	125	100.00	75	100.00	200	100.00
Marital status	Single	21	16.80	12	16.00	33	16.50
	Married	96	76.80	58	77.33	154	77.00
	Divorced	6	4.80	5	6.67	11	5.50
	Widow(er)	2	1.60	0	.00	2	1.00
	Total	125	100.00	75	100.00	200	100.00
Job experience (range)	≤ 10	49	39.20	11	14.67	60	30.00
	11 – 20	57	45.60	27	36.00	84	42.00
	21 – 30	19	15.20	34	45.33	53	26.50
	31+	0	.00	3	4.00	3	1.50
	Total	125	100.00	75	100.00	200	100.00
Religion	Christian	87	69.60	62	82.67	149	74.50
	Muslim	29	23.20	9	12.00	38	19.00
	Traditional worshipper	7	5.60	3	4.00	10	5.00
	Others	2	1.60	1	1.33	3	1.50
	Total	125	100.00	75	100.00	200	100.00
Household size (range)	≤ 4	45	36.00	35	46.67	80	40.00
	5 – 8	74	59.20	37	49.33	111	55.50
	9+	6	4.80	3	4.00	9	4.50
	Total	125	100.00	75	100.00	200	100.00
Education	OND	23	18.40	44	58.67	67	33.50
	BSc	71	56.80	24	32.00	95	47.50
	MSc	16	12.80	6	8.00	22	11.00
	Ph.D	15	12.00	1	1.33	16	8.00
	Total	125	100.00	75	100.00	200	100.00

Source: Field survey, 2017.

Work Characteristics of Extension Workers

Results in Table 2 shows that most of the respondents in Edo (94.40%) and Delta States (92.00%) had full time appointment. This may be adduced to the policy of the organization that is responsible for the employment of these worker. Only 40.00% and 37.33% of the extension workers in Edo and Delta States respectively were Subject Matter Specialist (SMS) while 20.80% and 25.33% were Block Extension Officers in Edo and Delta States. This implies that majority of the respondents were specialist in the field of extension and could need vital information from the internet to enhance their job performance.

Table 2. Work characteristics of respondents

		Edo		Delta		Total	
Work characteristics		Freq	%	Freq	%	Freq	%
Nature of employment	Full time	118	94.40	69	92.00	187	93.50
	Part time	7	5.60	6	8.00	13	6.50
	Total	125	100.00	75	100.00	200	100.00
Training background	CRP	27	21.60	23	30.67	50	25.00
	ANS	16	12.80	14	18.67	30	15.00
	Fisheries	7	5.60	15	20.00	22	11.00
	Forestry & wildlife	19	15.20	4	5.33	23	11.50
	AGE/Rural sociology	19	15.20	6	8.00	25	12.50
	AGE & Farm Mgt	37	29.60	13	17.33	50	25.00
	Total	125	100.00	75	100.00	200	100.00
Present rank/position	VEA	15	12.00	6	8.00	21	10.50
	BES	26	20.80	19	25.33	45	22.50
	SMS	50	40.00	28	37.33	78	39.00
	ZEO	18	14.40	10	13.33	28	14.00
	CEOZ	10	8.00	6	8.00	16	8.00
	DES	6	4.80	6	8.00	12	6.00
	Total	125	100.00	75	100.00	200	100.00
	GLO	23	18.40	16	21.33	39	19.50
	Others	22	17.60	12	16.00	34	17.00
	Total	125	100.00	75	100.00	200	100.00

Source: Field survey, 2017.

Internet Activities Used by Extension Workers in Edo and Delta States

Results in Table 3 showed that extension workers in Edo State mostly use the internet to communicate with colleagues on recent innovations (Mean= 3.11). This could be an indication that there is an established good relationship among extension workers that may encourage team spirit in proffering solutions to farmers' problems rather than huddling. This is in agreement with Ezeh (2013) [2] who reported that extension agents with the use of internet can access and source for varieties of information that could benefit farmers and also improve their extension services delivery. Meanwhile in Delta State, most prominent use of the internet by extension workers was to search for research based information (Mean=2.69).

Table 3. Internet activities extension workers use

	Edo		Delta		Total	
Areas of use	Mean	SD	Mean	SD	Mean	SD
To search for research-based information	3.10*	.62	2.69*	.77	2.95	.71
To source for agricultural news	3.05*	.74	2.53*	.78	2.86	.79
To disseminate ideas to farmers organization	3.07*	.70	2.48	.66	2.85	.74
To send videos and images of technologies to other extension workers and farmers	2.96*	.72	2.65*	.69	2.84	.72
To communicate with colleagues on recent innovations	3.11*	.67	2.33	.66	2.82	.77
To source for information while preparing for presentations	3.09*	.75	2.36	.78	2.82	.84
To communicate with other extension workers in other countries on improved technologies	3.10*	.75	2.33	.53	2.81	.77
To source for innovations	3.06*	.77	2.23	.48	2.75	.79
To source for information on farmers livelihood and possible ways of improving their living standard	2.71*	.92	2.28	.67	2.55	.86
To source for market locations to help farmers sell produce	2.62*	.97	2.37	.69	2.53	.88
To determine the current price of agricultural produce	2.63*	1.02	2.32	.62	2.51	.90

Source: Field survey, 2017.

**High (mean > 2.50)*

This may imply that even though the extension workers in Delta State are less competent with respect to the use of internet tools as at the time of this study, this did not

limit their effort to source for information online. This finding therefore contradicts that of Adetumbi *et al* (2013) [1] who reported that the use of internet was not popular among extension agents in performing their job.

Competency in Internet Usage by Extension Workers in Edo and Delta States

Table 4 shows the respondents competency in internet related activities usage in Edo and Delta States. It shows that in Edo State, the respondents were competent in all the listed areas mostly were their ability to use search engine like google and yahoo with a mean score of (Mean=3.37), except for the use of video conferencing among expert (Mean= 2.23). However, their counterpart in Delta State were less competent in all the listed areas. This shows that the extension workers in Edo state are more internet compliance than their counterpart in Delta State. Perhaps this may be attributed to the fact that there are more OND Graduate employed in Delta State (Table 1). This means that degree value have an influence on professional development Based on the finding in Delta State, it is obvious that there is an urgent need to train staff on skills acquisition required to properly use the internet.

Table 4. Extension workers' competency in internet use

	Edo		Delta		Total	
Areas of use	Mean	SD	Mean	SD	Mean	SD
Know how to download from a website	3.36*	0.85	2.35	0.88	2.98	.99
Know how to find a particular web page	3.37*	0.85	2.32	0.92	2.97	1.01
Can use search engines like google and yahoo	3.37*	0.91	2.29	0.90	2.96	1.04
Can download instructional videos from the internet	3.07*	0.97	2.36	0.90	2.81	1.00
Can connect to the internet using any internet browser	3.33*	1.01	1.92	0.80	2.80	1.16
Can Reply to, delete or forward e-mail	2.92*	1.09	2.28	0.89	2.68	1.06
Can attach a word document or picture to an e-mail and send as attachment	2.86*	0.98	2.28	0.83	2.64	.97
Can Create and send e-mail to other people	2.82*	1.08	2.17	0.86	2.58	1.05
Know how to download softwares	2.75*	1.06	2.19	0.85	2.54	1.02
Know how to install softwares	2.65*	1.03	2.27	0.92	2.50	1.00
Know how to update softwares	2.62*	1.05	2.16	0.82	2.45	.99
Can use the video conferencing among expert	2.37	0.98	2.00	0.77	2.23	.92

Source: Field survey, 2016.
**Competent (mean > 2.50)*

Extension Workers' Constraints to Internet Use

Table 5 shows constraints that impedes respondents' use of internet. Results from the table reveals that unstable power supply (Mean=3.47), unavailability of internet facility in the office (Mean=3.30), poor network reception (Mean=3.16) were the major constraints to internet usage as indicated by extension workers in Edo State. Also very similar in Delta State, unstable power supply (Mean=3.11), unavailability of internet facility in the office (Mean=2.97), poor network reception (Mean=2.69) were the major constraints to internet usage by extension workers. This implies that unstable power supply is really a hindrance to internet use which could affect the productivity of extension service delivery. This finding is accordance with Fadiji (2011) [3] who opined that network issues, funds for accessing the Internet as well as epileptic power supply were the major challenges faced by extension workers.

Difference in internet competency between ADP extension workers in Edo and Delta States

Table 6 shows the difference in internet competency between extension workers in Edo and Delta States. The result revealed that a statistical significant difference exist between extension workers in Edo ($\bar{X}$ = 35.48) and Delta States ($\bar{X}$ = 26.59) with respect to internet competency (t= 6.968 p= 0.05). The null hypothesis was therefore rejected.

Table 5. Extension workers' constraints to internet use

Constraints	Edo		Delta		Total	
	Mean	SD	Mean	SD	Mean	SD
Unstable power supply	3.47*	.72	3.11*	.95	3.33	.83
Unavailability of internet facility in the office	3.30*	.82	2.97*	.85	3.18	.85
Poor network reception	3.16*	.81	2.69*	.84	2.98	.85
Time constraint	2.85*	.95	2.59*	.72	2.75	.88
Inability to access full text	2.63*	.88	2.53*	.79	2.59	.85
Subscription to latest e-journal is expensive	2.67*	.91	2.39	1.00	2.56	.95
Financial constraints	2.54*	.91	2.40	.77	2.49	.86
Shortage of latest e-books	2.46	.80	2.51*	.74	2.48	.78
Network congestion	2.36	.73	2.60*	.77	2.45	.76
Lack of awareness of the availability of materials	2.45	.69	2.43	.89	2.44	.77
No access to internet facilities	2.32	.79	2.59*	.89	2.42	.83
Poor eye sight	2.30	.71	2.37	.78	2.33	.74
Payment to access useful materials online	2.22	.98	2.51*	.78	2.32	.92
Lack of knowledge about internet information retrieving techniques	2.20	.66	2.48	.86	2.30	.75
Information scattered in two many sources	2.13	.77	2.59*	.81	2.30	.81
Fear of fraudsters	2.27	.79	2.33	.84	2.29	.81
No patience to learn	2.18	.80	2.48	.76	2.29	.80
Display of undesirable content	2.13	.85	2.51*	.81	2.27	.85
Overload of irrelevant but useful information	2.05	.78	2.36	.78	2.16	.79
Low level of internet literacy	1.94	.90	2.43	.79	2.12	.89
I always lost track of time when using internet	1.97	.73	2.33	.72	2.11	.75

Source: Field survey, 2017.
**Serious (mean > 2.50)*

Table 6. Difference in internet competency between extension workers of ADPS in Edo and Delta States

Competency	Edo		Delta		an Difference	T	Prob. Level
	Mean	SD	Mean	SD			
Extension workers	35.48	9.33	26.59	7.64	8.893	6.968	0.00

Source: Field survey, 2017.

CONCLUSIONS

The study examined the comparative analysis of internet competency among extension workers in Edo and Delta States. Meanwhile there was a significant difference in the competency level among extension workers in Edo and Delta States. Though there are constraints confronting respondents in the study but a very serious constraint was unstable power supply which is a peculiar problem encountered by everybody in Nigeria. It is therefore recommended that sustainable internet connectivity and high powered generator should be made available to serve as a backup incase of power failure. Extension workers in Edo and Delta State should be trained on the competency of internet use in the acquisitions of instructional materials to optimize their job performance and better services.

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