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INFLUENCE OF THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS) ON AGRICULTURAL EXTENSION WORKERS JOB PERFORMANCE IN RIVERS STATE, NIGERIA

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ABSTRACT

The study was carried out to investigate the Influence of the use of Information and Communication Technologies (ICTs) on Agricultural Extension Workers Job Performance in Rivers State, Nigeria. It described the socio-economic characteristics of Agricultural Extension Workers; examined the extent of performance; and identified the challenges encountered by AEWs in the influence of ICTs in the study area. Purposive sampling technique was used to select sixty-five agricultural extension workers from both private and public extension organizations. Data were analyzed using descriptive and inferential statistics. The findings revealed that 60% of the respondents were males, while 40% were females, 56.9% were aged between 45-54 years, about 78.5% were married; and 49.2% were from households of 5-8 members. Considerable proportion (56.9%) had university degree, 41.5% had NCE/OND and 40% had 19 or more years of working experience. 66.2% visited the farmers fortnightly, and 33.8% visited famers once a month. Results on extent of the influence of ICTs by AEWs showed that in the public agricultural extension organizations GSM phone $(\bar{x} = 3.92)$ *was used most often while fax, PDA and digital wallet with* $(\bar{x} = 1.00)$ *were not used often. In private agricultural extension organizations GSM phone* $(\bar{x} = 4.00)$ *and land line* $(\bar{x} = 3.59)$ *were the most widely used media while fax* $(\bar{x} = 1.93)$ *was the least. The major influence of the use of ICTs on public AEWs job performance indicated that it saves time* $(\bar{x} = 3.90)$*, wider coverage* $(\bar{x} = 3.76)$ *while loss of job (1.08) was rejected. Also, in the private organizations it was discovered that the public AEWs had more challenges than the private AEWs in the study area with major constraints being erratic power supply, high cost of ICTs facilities and poor/inadequate training on ICT and high charges for radio & TV programme presentation. The result equally revealed that gender, educational level and household size influenced ICTs use by AEWs in the study area and that there is a significant difference between eh private and public extension organization in the extent of the influence of ICTs in their job performance. Finally, the study recommends that training courses on the ICTs application should be offered to RSADP extension workers to improve their digital literacy and data skills this would enhance effective communication with farm families for improved productivity, there should be stable power supply and adequate funding in RSMOA and government and stakeholders in telecommunication industry should regulate charges in internet subscription and TV/Radio stations.*

Keywords: Influence, ICTs, Extension and Job Performance

INTRODUCTION

The emergence of Information and Communication Technologies (ICTs) in this era has opened new avenues in agricultural knowledge management that could play an important role in meeting the prevailing challenges related to innovation, sharing, exchanging and disseminating agricultural information, knowledge and technologies to the intended small holder famers (Manage, 2012). The influence of information and communication technology (ICT) to extension services has revolutionized the traditional concept of extension from a face-to-face visit or farm/home visit to a digital form of transfer of knowledge/information (an intellectual information dissemination). ICTs have opened up a new chapter in extension communication and has facilitated global access to information crossing the geographical limitations.

Agriculture is one of the areas in which ICT is effectively applied particularly for the social and economic development of the Nigerian agrarian community (Omaku and Oyigbenum, 2012). ICTs can be used to enable, strengthen or replace existing information systems and networks. ICTs promote and distribute new and existing farming information and knowledge which is communicated within the agricultural sector since information is essential for facilitating agricultural and rural development and bring about social and economic changes (Swanson and Rajalahti, 2010). Over the years, the common practice among extension workers in reaching out to farmers had been through direct house to house visit or farm visits, meeting, discussion sessions, workshops and local training session. More often than not, meeting the farmer at home or at eth farm could only be unpredictable in that situations sometimes, meetings, lectures, group discussion sessions, seminars, workshops and local training sessions are held for farmers by extension workers using ICT tools such as computer, photographs and slides which could reach large number of people at the same time (Isife and Ofuoku, 2008). ICTs address global poverty and improving agricultural productivity by providing farmers with timely and relevant information; access to credit; and better market prices. Singh et al, (2017) opined that the influence of ICTs by Extension workers may increase production many folds by providing prompt, reliable and locality-based information service to the farmers.

Objectives of the Study

The broad objective of the study was to assess the Influence of the use of Information and Communication Technologies (ICTs) on Agricultural Extension Workers Job Performance in Rivers State, Nigeria.

The specific objectives of the study were to;

i. describe the socio – economic characteristics of Agricultural Extension Workers (AEWs);
ii. examine the extent of influence of ICTs by AEWs for their work;
iii. identify the challenges encountered by AEWs in influence of ICTs in the area

Hypotheses of the Study

The null hypothesis supports the study is as follows:

Ho_1: There is no significant relationship between the socio-economic characteristic and the attitude of the AEWs and ICTs influence in the area

Ho_2: There is no significant difference in the use of ICTs by AEWs in the public and private agricultural extension firms of Rivers State

Scope of the Study

The study focused on the Influence of the use of Information and Communication Technologies (ICTs) on Agricultural Extension Workers Job Performance in Rivers State, Nigeria. It also concentrated on the available media in which ICT are used and the extent of influence of information and communication technology by Agricultural Workers (AEWs) in Rivers State. The study further focused on the Influence of the use of Information and Communication Technologies (ICTs) on Agricultural Extension Workers Job Performance in Rivers State, Nigeria

Conceptual Framework

The relationship between the Information and Communication Technologies on Agricultural Extension Workers (AEWs) Job Performance is hereby explained below:

A. Dependent Variable

The dependent variable which is the influence of ICT by AEWs. The dependent variable is the influence of the selected ICT components such as: GSM phones, land – line phones, radio, television, computer, internet and e – mailing, cinema, CDs/DVDs Video player, cinema, camera, over – head projectors, VHS video player, Pocket Devices Assistants (PDAs), blog, fax Facebook,

WhatsApp website, digital wallet and cassette recorder, thus, in this study, the general concept is that type of organization either private or public will influence ICT by AEWs in performing their job, for instance the public extension organizations are nod different from other public offices where manpower development is low, poor internet connective technology backwardness, constant power outage, infrastructural decay and many more issues when compared to the private sector. More so, institutional polices differ from organization to organization.

B. Independent Variable

These are the different agricultural extension workers in public agricultural extension (Ministry of Agriculture and Agricultural Development Programme) and the Private agricultural extension (Total E & P and Green River Project). In this context, it is assumed that these agricultural extension organizations where the AEWs work will influence their usage of ICTs. Hence, theoretically, the Independent Variables (B) is expected to influence the influence of ICT. Thus, in this study, the Independent Variables are expected to predict the Dependent Variable (A).

C. Moderating Variable

Socio – economic characteristics of AEWs (Age, household size, income and level of education), type of ICT media available (GSM phones, land – line phones, radio, television, computer, internet and e – mailing, cinema, CDs/DVDs video player, cinema, camera, over – head projectors, VHS video player, pocket devices assistant (PDAs) blog, fax Facebook, WhatsApp website, digital wallet and cassette recorder) and institutional policies will influence the influence of ICT.

D. Intervening Variables

These are challenges encountered by AEWs in influence of ICT in Rivers State such as Poor internet access, poor ICT infrastructure, high cost of internet subscription, failure/slow network reception, erratic/poor power supply, poor/inadequate training on ICT, high cost of ICT facilities, high charges for radio/TV programmes presentation, inadequate funding amongst others, influenced ICT components.

E. Outcome/Effect

Finally, if all these variables are put in place it will lead to an outcome (Outcome/Effect) (E), the outcome /effect will lead to time saving, cost saving, more knowledge, value addition, wider coverage, fasten communication speed, effective information sharing less paper work, social problems, health problem, loss of job amongst others.

All these variables are interrelated with one another in a more dynamic way such that one variable is not a direct causality of another but an interconnectivity of several variables. For instance, the moderating and intervening variables influences the interrelationship between the dependent and independent variables they formed the external environment where the dependent and independent variable operate. These variables may create conducive or unfavorable environment for influence of ICT by AEWs. **Theory of Diffusion and Innovation**

Diffusion of innovations is a theory that seeks to explain how, why and at what rate new ideas and technology spread. Everett Rogers, a professor of communication studies popularized the theory in his book Diffusion of Innovations analyzing the diffusion of several agricultural innovations in a rural community in Iowa; the book was first published in 1962 (Rogers, 2003). Rogers argued that diffusion is the process by which an innovation is communicated over time among the participants in a social system. The theory has been sued in rural sociology/agricultural extension and also in other discipline such as anthropology, public health and general sociology.

In respect to the agricultural sector, it has been widely used by extension programme planners, evaluators and researchers to develop an understanding of the reasons why extension programmes result in adoption or rejection of a particular new practice it also provides a general understanding of the impact of extension programmes through the extent/degree of innovation and adoption (Rogers, 2003). Many governments of developing economies have used the diffusion of innovations theory to shape the conceptual framework and implementation design of

international rural development programmes. The diffusion of innovations theory was the leading theory in agricultural extension post World War II until the 1970s.

Media Richness Theory

Media Richness Theory (MRT) was introduced in 1986 by Richard L. Daft and Robert H. Lengel. MRT was originally developed to describe and evaluate a communication media within organizations. In representing media richness theory, Daft and Lengel sought to help organizations cope with communication challenges such as unclear to confusing message or conflicting interpretations of messages (Daft and Lengel, 1986). Information richness is the ability of information to change understanding within a time interval (Daft and Lengel, 1986). Media richness theory states that all communication media vary in their ability to enable users to communicate and to change understanding. MRT places all communication media on a continuous scale based on their ability to adequately communicate a complex message.

According to Daft and Lengel (1986) the more learning that can be prompted through a medium, the richer the medium. Media richness theory predicts that Agricultural extension workers will choose the mode of communication based on aligning the equivocality of the message to the richness of the medium. In other words, communication channels will be selected based on how communicative they are (Daft and Lengel, 1989).

Channel Expansion Theory (CET)

Chanel expansion theory was proposed by Carlson, John, Robert & Zmud, (1999). The results in their study showed that managers would employ "leaner" media for tasks of high equivocality. Channel expansion theory's suggested that individual's media choice has a lot to do with individual's experience with the medium itself, with the communicator and also with the topic. Thus, it is possible that an individuals experience with using a certain lean medium will prompt that individual to use it for equivocal tasks.

Agricultural extension workers perception of channel richness kept vary over time, as they vary in how they utilize different features of media channels in their communication processes there is also a need for some form of training to continuously support users as technical features and commination capabilities of the channel expand (channel becomes richer). The most profound implication the theory has for agricultural extension workers is that it places great emphasis upon building knowledge rather than just simple experiences with media channels; if users wish to enhance effectiveness of a media tool, they should acquire knowledge about its characteristics and capabilities rather than just use it repeatedly.

Empirical Literature

Olaitan et al, (2017) carried out a study on appropriateness of information and communication technologies (ICTs) uses: A case study of agricultural information dissemination in Ogun State, Nigeria. A survey of 152 extension agents and farmers were sampled using multi – stage procedure for the study. Data obtained were analyzed using relevant descriptive and inferential statistics. The result shown that mobile phone, radio and television were the commonly ICTs facilities employed by the extension agents (74%, 54% and 49%) and farmers (96%, 84% and 49%) for agricultural information transmission and reception respectively. Likewise, extension agents noted phones (74%), radio (64%), television (49%), newspapers (30%) and internet services (28%) as highly relevant for disseminating agricultural information. However, only phones (73%) and radio (72%) were indicated by farmers as highly relevant for the reception. Also, most farmers dissatisfied with messages' channeling via use of CD – ROMS (100%), internet services (98%) and newspapers (85%), despite satisfaction of some extension agents with use of newspapers (31%) and internet services (18%). Test of hypothesis revealed that at $p<0.05$, use of ICTs is significantly related to age and Cosmo politeness of farmers ($r= -0.371$ and 0.213) and extension agents (0.365 and

0.511), respectively. It was concluded that mobile phones and radio are appropriate technologies that can be harnessed for augmenting agricultural information dissemination.

Ezeh, (2013) carried out a study to assess field extension agents' access and influence of information and communication technology (ICT) in extension service delivery in South East Nigeria. Multi – State sampling procedure involving purposive and simple random sampling techniques were employed in selecting 120 extension agents used for the study. Primary data were collected with the aid of a well - structured questionnaire and analyzed using descriptive statistics according to the specific objectives of the study. The result of the socio – economic characteristics of the extension agents showed that 61.67% of the extension agents studied were males whose age bracket fall between 40 – 49 years and majority (78.33%) were married. Majority (85%) had post-secondary education with a household size of 1 – 3 persons and majority (51.67%). Further analysis revealed that although many ICT facilities exist, both contemporary and conventional ICTs, radio, television and phones sourced personally from open market were the most readily available ICT facilities owned, accessed, and utilized by most of the extension agents. Consequently, the level of access and influence of these facilities were found to be generally low with a mean score responses of $x = 1.8$ and $x = 2.4$ respectively. The study made some necessary recommendations such as strengthening the use of contemporary ICTs (phones, internet connected computer etc), provision of adequate training on the use of ICTs for extension agents and general improvement in rural infrastructure were made among others.

Umar et al, (2015) in their publication Awareness and the use of information and communication technologies amongst extension agents in Kaduna State of Nigeria. The study assessed awareness and use of information and communication technologies among extension agents in Maigana Zone of Kaduna State Agricultural Development Project (A.D.P). All extension personnel in the zone (79) were interviewed through the use of structured questionnaire. Descriptive statistics and multiple regression analysis were sued to analyze the study. It was found that 60.15% of the respondents were aware of at least one ICT in the study area. The multiple regression analysis of the relationship between ICT usage and level of training, membership of professional association, marital status and education level were positively significant ($p<0.05$). It was concluded that socio – economic characteristics of the extension agents in the study area influence their level of use of ICT.

The result also revealed that the leading constraint to effective influence of ICTs was inadequate power supply (94.3%); followed financial constraints (90%) which inhibit acquisition of technologies. Other constraints to the influence of ICTs among extension agents are dearth of ICT facilities especially at workplace (85.7%), lack of technical knowhow (78.6%), lack of supportive government policies (77.1%) and problem of connectivity (71.4%). It was recommended that provision of ICT facilities and stable power, as well as capacity building on ICT usage should be promoted among extension personnel. This would enhance effective communication with farm families for improved productivity.

Summary of Literature Reviewed

Despite numerous benefits on information communication technologies usage, there is still limited literature on its impact in developing nations. This is because while a lot has been documented about the concept of ICTs in developed countries, most studies related to influence of ICTs by Agricultural Extension Workers in less advanced nations is barely found. Furthermore, it was observed that very diminutive information was provided on influence on the influence of ICTs facilities by AEWs as it relates to their job performance while surplus information was provided with regards to the available ICTs facilities/media. Also, related studies in developing nations have failed to consider the extent of influence of the ICTs facilities by Agricultural Extension Workers in Nigeria. Finally, it was observed that majorly on private Agricultural Extension Workers embark on capacity building on ICT in respect to training on ICT. All the literatures reviewed here, have in one way or the other discussed an objective closely related to the highlighted in this Dissertation

on influence of information and communication technologies by agricultural extension workers in Rivers State, Nigeria, but none of them have holistically looked at all the objectives together like it has been done in this study and with specific reference to 23 local Government in the State, this is the gap which this study intend to bridge.

METHODOLOGY

The Study Area

The study area is Rivers State, Nigeria. Rivers State is one of Nigerians 36 states located in the South – South geopolitical zone. Its capital is Port Harcourt and it has 23 local government areas. It is bounded on the South by the Atlantic Ocean, to the north by Anambra, Imo and Abia States, to the east by Akwa Ibom State and to the west by Bayelsa and Delta States. From the Nigerian Population Commission (2006), the state has a total population of 5,198,716, with males having a population of 2,673,026 and females 2,525,690.

Rivers State lies between latitude 5^0N and mid – way between longitude 5^0S South of the Greenwich Meridian (RSADP, 2000). The inland part of Rivers State consists of tropical rainforest; towards the coast the typical river delta environment features many mangrove swamps.

Rivers State is home to many ethnic groups including Ikwerre, Ibani, Opobo, Kalabari, Wakrike, Ogba, Engene, Ekpeye, Ogoni, Etche and others (Dihoff, 1983). Rivers State Ministry of Health (2011) Data of 2010 – 2-15 shoed life expectancies for male, 54 years and female, 57 years were very low and mortality rate was 60 per 1000, under – 5 mortality rate was 90 and maternal mortality rate was 889 per 100,000 live births, one of the highest nationwide.

Population of the Study

The study population consisted of all the public and private sector extension workers in the study area. There were 50 public extension workers in the study area, with Rivers State Ministry of Agriculture having 24 extension agents in the following departments (Forestry, Fisheries, Veterinary/Livestock) and Rivers State ADP had 9 Extension Agents (EAs), 12 Block Extension Supervisor (BES) and 5 Block Extension Agents (BEAs) to have a total of 26 Extension Workers (Rivers State Ministry of Agriculture and Rivers State Agricultural Development Project, 2019). The Nigeria Agip Oil Company (Green River Project (G.R.P) had 7 extension workers and Total E & P, 8 Extension workers in the study area (GRP and Total E & P, 2019) making a total of 65 Agricultural Extension Workers.

Sampling Procedure/Sampling Size

A sample of 65 public and private Agricultural Extension Workers in Rivers State was studied. The sample was drawn using a purposive sampling technique. The purposive sampling technique as used to select all the extension works in the ministry of Agriculture, Agriculture Development Programme, Green River Project and Total E & P. The purposive sampling was used because the sample size was small. Forty – eight (48) Extension Agents (EAs), twelve (12) Block Extension Supervisors (Bes) and five (5) Block Extension Agents (BEAs), giving a total sample size of sixty – five (65) Extension Workers. The Establishment with more Extension Workers had more respondents.

Table 1: Table Showing Sample Procedure and Sample Size of the Study Area

S/N	Establishment	EAs	BESs	BESs
1	**Public Extension**			
	Agricultural Development Programme	9	12	5
2	**Ministry of Agriculture**			
	- Forestry	7	-	-
	- Fisheries	8	-	-
	- Veterinary/Livestock	9	-	-
3	**Private Extension**			

	Green River Project (G.R.P)	7	-	-	
4	Total E & P	8	-	-	
Total		**48**	**12**	**5**	**65**

Method of Data Collection

Primary data were used and collected through the administrator of structured questionnaire which was administered with the employ of four (4) trained research assistants. The instrument was divided into two sections. Section A covered the socio – economic characteristics of the respondents while section B covered the other objectives. After filling, the research instrument was collected for analysis.

Method of Data Analysis

The data collected from the respondents were analyzed using descriptive statistics such as: frequency table, percentage and mean score to answer research questions. Also, inferential statistics such as Analysis of Variance (ANOVA) and Multiple regression analysis were used for the test of the stated hypotheses of the study. The four – point Likert – type scale mean score was 2.50 the values (4+3+2+1) were added to get 10 which was further divided by 4 to give 2.50, this was used as the decision rule for objective four (4) and five (5). Hypothesis one (1) was tested using regression analysis and hypothesis two (2) was tested using Analysis of Variance (ANOVA) at 0.05 significant levels.

RESULTS AND DISCUSSION

Socio-Economic Characteristic of the Respondents

The table below shows that out of the 65 sampled respondents, more (60%) were males, while 40% were females. The mean age of the respondents was 31 years. The results also revealed that many of the respondents (56.9%) were aged between 45 – 54 years, followed by those within the age range 35 – 44 years (18.5%), 20% were 55 years and above, and (4.6%) were between the ages 25 – 34years. Majority (78.5%) were married, 12.3% were single, 6.2% were separated and 3.1% are widowed and above. Also, on years of working experience, the results showed that more (40%) have been working for 19 years and above, 23.1% have been working for 11 – 14 years, 16.9% said to have been working of r15 – 18 years, (9.2%) 3 – 6 years and none of the respondents had been working for less than 2 years. On the educational level of the respondents, more *56.9%) had HND/B.Sc, 41.5% had OND/NCE and 1.5% had only secondary education. More of the respondents (49.2%) had a household size of 5 – 8, followed by 44.6% with household size 1 – 4, 6.2% had within 9 – 12 persons in their household and none for 13 and above. Majority (66.2%) said they visited the farmers fortnightly and 33.8% visited farmers once a month.

Table 2: Socio-economic characteristics of the respondents

Gender	Frequency (n = 65)	Percentage %
Gender		
Male	39	60.0
Female	26	40.0
Total	**65**	**100.0**
Age (years)		
25 – 35	3	4.6
35-44	12	20.0
45-54	37	56.9
55 and above	13	18.5
Total	**65**	**100.0**
Marital status		
Single	8	12.3
Married	51	78.5
Separated	4	6.2

widowed	2	4.6
Total	**65**	**100.0**
Level of education		
Secondary	1	1.5
NCE/OND (Tertiary)	27	41.5
HND/B.Sc (Tertiary)	37	56.9
Total	**65**	**100.0**
Number of Household size		
1-4	29	44.6
5-8	32	49.2
9-12	4	6.2
Total	**65**	**100.0**
Working Experience (years)		
3-6	6	9.2
7-10	7	10.7
11-14	15	23.1
15-18	11	16.9
19 and above	26	40.0
Total	**65**	**100.0**
Regularity of visit to farmers		
Fortnightly	43	66.2
Once a month	22	33.8
Total	**65**	**100.0**

Extent of the Influence of ICTs by AEWs for their Work

Data in table 3 below shows mean response on the influence of the use of ICTs on Agricultural extension workers job performance in the study area. From the results in the Rivers State Agricultural Development Project (RSADP) and Rivers State Ministry of Agriculture (RSMOA) (Public Extension) Time Saving ($\bar{x} = 4.00$) and ($\bar{x} = 3.79$) respectively, cost saving ($\bar{x} = 2.80$) and ($\bar{x} = 2.91$) respectively, more knowledge ($\bar{x} = 3.53$) and ($\bar{x} = 2.79$) respectively, wider coverage ($\bar{x} = 3.61$) and ($\bar{x} = 3.91$) respectively, fasten communication speed ($\bar{x} = 3.69$) and ($\bar{x} = 3.12$) respectively, effective information sharing ($\bar{x} = 2.96$) and ($\bar{x} = 3.12$) respectively were accepted as the influence of the use of ICT on Agricultural Extension workers job performance in the study area. Value addition ($\bar{x} = 2.54$) was also accepted in the RSMOA.

However, the result revealed that less paper work ($\bar{x} = 1.80$) and ($\bar{x} = 2.00$) respectively, social problem ($\bar{x} = 2.30$) and ($\bar{x} = 2.00$) respectively and loss of job ($\bar{x} = 1.07$) and ($\bar{x} = 1.08$) respectively were rejected as not having influence on the use of ICT on Agricultural Extension Workers Job performance in the study area. Value addition ($\bar{x} = 1.92$) was also rejected in RSADP. On the Total E & P Green River Project (Private Extension), the result shows that Time saving ($\bar{x} = 3.75$) and ($\bar{x} = 3.28$) respectively, cost saving ($\bar{x} = 3.00$) and (2.57) respectively, value addition ($\bar{x} = 3.00$) and ($\bar{x} = 3.71$) respectively, wider coverage ($\bar{x} = 3.75$) and ($\bar{x} = 3.71$) respectively, fasten communication speed ($\bar{x} = 3.87$) and ($\bar{x} = 3.85$) respectively, effective information sharing ($\bar{x} = 2.50$) and ($\bar{x} = 3.57$) respectively, less paper work ($\bar{x} = 3.87$) and ($\bar{x} = 3.28$) respevtively, social problem ($\bar{x} = 3.00$) and ($\bar{x} = 3.00$) respectively and health problem ($\bar{x} = 3.00$) and ($\bar{x} = 2.85$) were accepted as the influence of the use of ICT on Agricultural Extension Workers job performance in the study area. However, the result showed that loss of job ($\bar{x} = 1.00$) in Total ELF and GRP ($\bar{x} = 1.4$) were moderately low.

Table 3: Extent Influence of ICTs by AEWs for their Work

ICT facilities	RADP	RMOA Mean	Public AEWs Grand Mean	Total E & P	GRP Mean	Private AEWs Grand Mean
GSM phone	4.00	3.83	3.92	4.00	4.00	4.00
Landline phone	1.88	2.12	2.00	3.75	3.42	3.59
TV set	2.03	2.45	2.24	2.75	2.85	2.80
Cinema	1.73	2.16	2.18	3.00	3.14	3.07
VHS Video player	2.11	2.25	-	2.75	3.28	3.02
Camera	2,.42	2.33	2.40	3.12	3.57	3.35
Internet	2.42	2.83	2.63	3.50	3.85	3.68
Computer set	2.19	2.41	2.30	3.87	3.85	3.86
Overhead projector	2.57	2.66	2.62	3.00	3.00	4.00
Fax	1.00	1.00	1.00	2.00	1.85	1.93
Cassette recorder	1.92	2.41	2.17	2.75	3.28	3.02
PDA	1.00	1.00	1.00	2.25	1.71	1.98
Radio	2.15	3.08	2.61	3.25	3.42	3.34
CD/DVD Player	1.84	2.54	2.19	3.25	3.57	3.41
Website	1.15	1.25	1.20	3.12	3.28	3.20
Blog	1.00	1.00	1.00	2.75	1.85	2.30
Digital wallet	1.00	1.00	1.00	2.25	2.42	2.34
E – mail	1.76	1.54	1.65	3.37	3.00	3.19
Facebook	1.96	2.16	2.06	4.00	3.00	3.50
WhatsApp	2.80	2.62	2.71	3.87	3.57	3.72

Challenges Encountered by AEWs in Influence of ICTs in the Study Area

The result in the table 4 below shows the mean responses of the challenges hindering the influence of ICTs by AEWs workers in Rivers State in Extension Service Delivery. From the result in Rivers State Agricultural Project (RSADP) and Rivers State Ministry of Agriculture (RSMOA) Public Extension), Poor internet access ($\bar{x} = 3.46$) and ($\bar{x} = 3.45$) respectively, poor ICT infrastructure ($\bar{x} = 3.19$) and ($\bar{x} = 3.33$) respectively, high cost of internet subscription ($\bar{x} = 3.53$) and ($\bar{x} = 3.41$) respectively, failure/slow network reception ($\bar{x} = 3.00$) and ($\bar{x} = 3.08$) respectively, poor/erratic power supply ($\bar{x} = 3.53$) and ($\bar{x} = 3.85$) respectively, poor/inadequate training on ICT ($\bar{x} = 3.69$) and ($\bar{x} = 3.62$) respectively, high cost of ICT facilities ($\bar{x} = 3.03$) and ($\bar{x} = 3.79$) respectively, high charges for radio and TV programmes presentation ($\bar{x} = 3.30$) and ($\bar{x} = 3.50$), inadequate funding ($\bar{x} = 3.53$) and ($\bar{x} = 3.83$) were all accepted as challenges encountered by AEWs in influence of ICT in extension service delivery in the study area.

On total E & P and Green River Project (Private Extension), the result revealed that high cost of internet subscription ($\bar{x} = 3.62$) and ($\bar{x} = 3.57$) respectively, high cost of ICT facilities ($\bar{x} = 3.37$) and ($\bar{x} = 3.57$) respectively, high charges for radio and TY programmes presentation ($\bar{x} = 3.62$) and ($\bar{x} = 3.71$) respectively, inadequate funding ($\bar{x} = 2.75$) and ($\bar{x} = 2.85$) were accepted as challenges encountered by AEWs in influence of ICT in extension delivery in the study aera.

However, the result showed that poor internet access ($\bar{x} = 1.37$) and ($\bar{x} = 1.42$) respectively, Poor ICT infrastructure ($\bar{x} = 1.00$) and ($\bar{x} = 1.57$) respectively, failure/slow network reception ($\bar{x} = 1.62$) and ($\bar{x} = 1.57$) respectively, poor/erratic power supply ($\bar{x} = 1.25$) and ($\bar{x} = 1.42$) respectively, poor/inadequate training on ICT ($\bar{x} = 1.25$) and ($\bar{x} = 1.28$) respectively were rejected.

Table 4: Challenges Encountered by AEWs in Influence of ICTs in the study area

Challenges	RSADP Mean	RSMOA Mean	Public AEWs Mean	Total E & P	GRP Mean	Private AEWs
Poor internet access	3.46	3.45	3.46	1.37	1.42	1.40
Poor ICTs infrastructure	3.19	3.33	3.26	1.00	1.57	1.29
High cost of internet subscription	3.53	3.41	3.47	3.62	3.57	3.60
Failure/slow network reception	3.00	3.08	3.04	1.62	1.57	1.60
Poor/erratic power supply	3.53	3.83	3.68	1.25	1.42	1.34
Poor inadequate training on ICT	3.69	3.62	3.66	1.25	1.28	1.28
High cost of ICTs facilities	3.03	3.79	3.41	3.37	3.57	3.47
High charges for radio & TV programmes presentation	3.30	3.50	3.40	3.62	3.71	3.67

Test of Hypotheses

Ho_1: There is no significant relationship between socio – economic characteristics of the AEWs and ICTs influence in the study area.

Table 5 shows result of multiple regression of the relationship between socio-economic characteristics and extent of influence of ICT by AEWs. The results indicated a significant relationship between the extent of ICT use by AEWs and some of the socio-economic characteristics (gender, educational level and household size) of the respondents. Age, marital status, working experience and number of visits to farmers did not significantly influence the use of ICT by AEWs in the study area.

Table 5: Multiple Regression Result of the relationship between socio – economic characteristics of the AEWs and ICTS influence in the study area

Variables	Coefficient	t-value	Sig	R	R^2	Std Error
Gender (X_1)	-0.380	-2.946	0.005	0.0510[a]	0.260	0.47820
Age (X_2)	-0.066	-.770	0.445			
Marital status (X_3)	0.011	-.141	0.888			
Education (X_4)	0.294	2.288	0.026			
Household size (X_5)	-0.302	-2.789	0.007			
Working experience (X_6)	-0.032	-.672	0.504			
Visit to farmers (X_7)	-0.118	-.880	0.3830.000			
Constant	2.534	5.062				

Ho_2: There is no significant relationship between socio – economic characteristics of the AEWs and ICTs influence in the study area

Table 6 below shows results of multiple regression of the relationship between socio-economic characteristics and extent of influence of ICT by AEWs. The results indicated a significant relationship between eh extent of ICT use by AEWs and some of the socio-economic characteristics (gender, educational level and household size) of the respondents. Age, marital status, working experience and number of visits to farmers did not significantly influence the use of ICCT by AEWs in the study area.

Table 6: Analysis of Variance for ICTs influence by AEWs in the different Extension Organizations

Types of Extension Organizations		Mean Influence of ICT	Fcal.	Ftab.
Public	ADP MOA	1.95[a] 2.14[a]	61.116	2.281 x 10^{-18}
Private	Total E & P GRP	3.12[b] 3.10[b]		

Mean difference significant at 0.05 probability level

CONCLUSION

The extent of influence of the following ICTs facilities: GSM phone, line phones, TV, Cinema, VHS video player, camera, internet, computer, overhead project, cassette recorder etc. by AEWs in Total E & P and Green River Project (GRP) (private extension) were also remarkably high. In Total E & P Blog was remarkably high also. Furthermore, the study ahs demonstrated that significant relationship exists between the respondent's socio-economic characteristic and ICT usage. The study indicated positive effect/outcome of ICT influence on the respondents in terms of: time and cost savings, more knowledge, value addition, wide

coverage, fasten communication speed, effective information sharing. Furthermore, numerous challenges were found to have constituted hindrances toward ICT influence by the respondents, in Rivers State Agricultural Development Project (RSADP) poor/inadequate training in ICT was accepted as the major challenges, in Rivers State Ministry of Agriculture, Poor/erratic power supply, inadequate funding were accepted as the major challenges.
In the Green River Project (GRP) high charges for radio and TV programmes presentation was revealed as the major challenges while in Total E & P, high cost of internet subscription and high charges for radio and TV programmes presentation were revealed by the respondents as the major challenges.

RECOMMENDATIONS

The following recommendations are made according to the findings of the study.

- **i.** It is therefore recommended that training courses on the ICTs application should be offered to RSADP extension workers to improve their digital literacy and data skills this would enhance effective communication with farm families for improved productivity.
- **ii.** There should be stable power supply and adequate funding in RSMOA
- **iii.** Government and stakeholders in telecommunication industry should regulate charges in internet subscription and TV/Radio stations

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