



CONSTRAINTS TO INFORMATION AND COMMUNICATION TECHNOLOGY UTILISATION BY VILLAGE EXTENSION AGENTS IN SOUTH-SOUTH NIGERIA

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ABSTRACT

The study assessed constraints to the use of information and communication technologies (ICT) by village extension agents in South-south Nigeria. The population of the study comprises all village extension agents (VEAs) in South-south Nigeria. A total sample of 300 VEAs was selected using a multistage sampling procedure. A set of questionnaire was used for primary data collection while frequency count, percentage, mean score and standard deviation were used for data analysis. The results show that majority (87.7%) of VEAs had tertiary education, working experience (20 years) and average monthly income of sixty thousand naira. The ICT tools used by VEAs included phone (M=3.77), radio (M=3.70), television (M=3.51), video (M=2.56), computer (M=2.53), personal e-mail (M=2.51) and internet (M=2.50). Constraints to ICT use were lack of internet access in the rural areas (M=3.61), lack of ICT infrastructure (M=3.53), high cost of internet subscription (M=3.47), lack of training on ICT (M=3.42), lack of power supply (M=3.23) and poor income (M=3.14). It was recommended that the identified constraints to ICT utilisation should be tackled by the appropriate stakeholders with adequate provision of ICT infrastructure and improved power supply in order to encourage massive utilisation of ICT by VEAs. Also, effort should be geared towards encouraging ICT usage by VEAs with adequate inclusion of ICT in the pre-service curriculum of prospective VEAs.

Keywords: ICT, Utilisation, Village Extension Agents, Agricultural Technologies, Dissemination

INTRODUCTION

In Nigeria, agriculture has remained the highest employer of labour. Central Bank of Nigeria (2006) describes Nigeria as an agrarian society with about 70 percent of her over 140 million people engaged in agricultural production. The contribution of agriculture to Nigeria's gross domestic product (GDP) has been on the increase in recent years (Agada and Evaneline, 2014). However, agriculture with its positive impact on the Nigeria populace is bedevilled with myriad of problems among which is poor utilisation of technologies (Awhareno, Omoregbe and Ekpebu, 2013).

Mojisola and Mbibi (2007) noted that achieving rural and agricultural development is a function of producing knowledgeable and well informed farming communities. This can be achieved with information and communication technologies (ICT) with precision as most of them have high flexibility and profitability, for example the mobile phone (Gadzama and Akinola, 2013). In the last few years, the concept of information and communication technologies (ICTs) has become a global concern of which agricultural development and rural transformation are given the highest priority. ICT with its vast potentials in every field of human endeavour is the only answer to the threat on agricultural extension services' relevance in today's world. Thus, Richardson (2003) in Omotayo (2005) reiterates the imperative of ICTs in achieving agricultural extension's ultimate goals. If adopted and properly applied, ICTs have the potentials to really transform agricultural extension in developing countries like Nigeria. Its impact could include: fast and prompt response to farmers'

information needs, affordable, reliable, relevant and location-specific information to farmers, extension workers will be globally connected and have up-to-date information, farmers will be connected directly by-passing extension workers, it will become everyday tool of extension workers, it will help extension workers develop new skills, and feedback between extension and clientele will greatly improve.

Given the importance of ICT in facilitating effective and timely information delivery, it has witnessed wide application in nearly all human endeavours (Adebowale, 2009). At the inception of the state-wide ADPs in 1980, the extension agent: farmer (EA: farmer) ratio ranged between 1:2000 and 1:3000. This was expected to drop to between 1:800 and 1:1000 by the project completion date and the withdrawal of World Bank support (Adejo *et al*, 2013). This target was never achieved. A field survey by National Agricultural Extension Research Liaison Service (NAERLS) and Programme Coordinating Unit (PCU) reveals that the EA: farmer ratio was between 1:848 in Ogun state in South-West Ecological zone to 1:1650 in Katsina state in the North-West Ecological zone (Adejo *et al*, 2013). It could be seen therefore that no matter how effective extension delivery through village extension agents will be, it can never be efficient and cost-effective in a developing country like Nigeria, with a population of over 150 million (National Population Commission, 2006), majority of who are involved in agriculture and illiterate. It is clear that ICT is the only technology that can bridge this gap in the extension delivery system.

It is however unfortunate that in spite of the efficiency and effectiveness demonstrated by the use of ICTs, it is fraught by several challenges. Despite huge government investment on ICT in the last ten years, ICT seemed to be underutilised especially in the agricultural sector. It was against this background that the study set out to assess the constraints to the utilisation of ICTs by VEAs in South-south, Nigeria.

1. examine the socioeconomic characteristics of the VEAs,
2. ascertain the level of use of ICT tools by the VEAs in extension services delivery, and
3. determine the constraints to the use of ICT tools by VEAs.

METHODOLOGY

The study was conducted in South-South geopolitical zone of Nigeria. The area comprises six states of Akwa-Ibom, Bayelsa, Cross-River, Delta, Edo and Rivers. The area lies between latitude 4°10' and 7°30' North and longitude 4°30' and 9°45' East. The total land area of the zone is 112,110 square kilometres'. The area has a population of 21,044million people (National Population Commission, 2006). The area, based on the 2006 census has an official growth rate of 2.83 percent per annum (Niger Delta Development Commission, 2008). The area is made up of different ethnic groups (Niger Delta Development Commission, 2008; Wikipedia, 2014). The area has the ecological condition of riverine and upland with abundant resources backed by oil wealth.

The target population for this study were the village extension agents (VEAs) of the states' ADPs of South-South Nigeria. A multistage random selection procedure was adopted in selecting the respondents. The area is made up of six states out of which three - Delta, Rivers and Akwa-Ibom States were randomly selected. The respondents were sampled from all the Agricultural zones in each of the selected States. Using a proportionate sampling of 40%, a total of 300 VEAs were sampled from the 12 Agricultural zones that make up the three selected States.

A set of structured questionnaire was used to collect primary data from the VEAs. Descriptive statistical tools such as frequency table, percentage, mean and standard deviation were used to analyse the data. A discriminating index was set for objectives 2 and 3 at 2.5 for the acceptance level of an item as an ICT tool used or as a constraint by summing the weight of the scales and dividing by the number of scales. Thus mean scores of 2.5 and above were considered as used ICT tool or constraint and vice versa.

RESULTS AND DISCUSSION

Socioeconomic characteristics

Results in Table 1 reveals that majority (87.7%) of the VEAs had tertiary education while 12.3% had secondary education. Education is a valuable asset in the use of innovations. It makes the personality rational and analytical. It also increases vistas of opportunities and could predispose longing for more facilities and better access to existing ICTs. In line with this, Torimiro (1997) observes that higher level of literacy will aid the assessment and use of information.

The result also shows that 44.3% had between 21 – 30 years working experience while 32.7% had between 11 – 20 years working experience. Also, 14.3% had below 10 years working experience while 8.7% had more than 30 years of working experience. The mean number of years of working experience was 20 years with a range of 1 year to 30 years. The result implies that the VEAs had reasonable years of working experience. The VEAs by their reasonable years of working experience are on a better pedestal to access, use and identify constraints to ICT tools.

The Table also shows that majority of the VEAs (33.7%) earned between N61,000 – N80,000 monthly. Also, 23% earned between N41,000 – N60,000 while 22.6% earned above N101,000. The average monthly income was N60,000. Based on the average monthly income, it could be difficult for a VEA to obtain some of the ICT tools on his own.

Level of use of ICTs

Table 2 shows the VEAs level of ICT use. Based on 2.50 discriminating index, seven (7) out of fifteen (15) listed ICT facilities had mean values above the discriminating index (≥ 2.50) and thus were adjudged the ICT facilities the VEAs used. The GSM (phone) had the highest mean value of 3.77 with a standard deviation of 0.72. This was closely followed by radio and television with 3.70 and 3.51 mean values and standard deviation of 0.68 and 0.90 respectively. Video had 2.56 mean score and standard deviation of 1.11 while computer had 2.53 mean value and 1.13 standard deviation. Also, personal e-mail had 2.51 mean score and 1.33 standard deviation while internet had 2.50 mean score and 1.16 standard deviation. The standard deviation value for ten out of fifteen listed ICT facilities were tending to zero. This implies that the values were very small indicating that VEAs did not differ much in their responses. The grand mean was 2.14 indicating that the VEAs' use of ICT tools was low. This shows that there were some ICT tools that were not used or whose uses were limited.

**Table 1: Distribution of Socioeconomic Characteristics of VEAs**

Variable	Frequency	Percent	Mean
Education			
Secondary education	37	12.3	
Tertiary education	263	87.7	
Working Experience			
1 – 10	43	14.3	
11 – 20	98	32.7	
21 – 30	133	44.3	20
31 and above	26	8.7	
Monthly Income (N)			
1,000 – 40,000	14	4.7	
41,000 – 60,000	69	23.0	
61,000 – 80,000	101	33.7	N60,000
81,000 – 100,000	48	16.0	
101,000 and above	68	22.6	
Total	300	100	

Source: Field Survey, 2015

Table 2: Distribution of VEAs by level of ICT use

ICT Facilities	Very Often		Often		Sometimes		Never		Total Mean*	SD
	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Phones (GSM)	266	88.7	16	5.3	1	0.3	17	5.7	3.77*	.72
Radio	237	79.0	47	15.7	5	1.7	11	3.7	3.70*	.68
Television	212	79.0	55	18.3	8	2.7	25	8.3	3.51*	.90
Video	79	70.7	79	26.3	73	24.3	69	23.0	2.56*	1.11
Computer	82	26.3	57	19.0	90	30.0	71	23.7	2.53*	1.13
Personal e-mail	112	27.3	57	19.0	61	20.3	115	38.3	2.51	1.33
Internet	69	37.3	31	10.3	93	31.0	107	35.7	2.50	1.16
Personal website	57	23.0	24	8.0	47	15.7	172	57.3	1.89	1.19
Cinema	28	19.0	19	6.3	78	26.0	175	58.3	1.67	.95
CD-ROM	18	9.3	4	1.3	71	23.7	207	69.0	1.44	.80
Organisational e-mail	3	6.0	8	2.7	57	19.0	232	77.3	1.27	.56
Organisational website	2	1.0	8	2.7	52	17.3	238	79.3	1.25	.53
Digital wallet (E-wallet)	0	0.7	10	3.3	42	14.0	248	82.7	1.21	.48
Geographic information system (GIS)	0	0.0	1	.3	57	19.0	242	80.7	1.20	.41
Blog	0	0.0	0	0.0	22	7.3	278	92.7	1.07	.26

*Significant (mean \geq 2.50) Grand mean = 2.14

Source: Field Survey, 2015

Constraints to the use of ICT facilities by VEAs

Table 3 shows the VEAs' constraints to the use of ICT tools. Based on 2.50 discriminating index, thirteen (13) out of the sixteen (16) listed constraints had mean values above the discriminating index (\geq 2.50) and thus were adjudged serious constraints to ICT facilities use by VEAs.

Lack of internet access in the rural area had the highest mean value of 3.61 with a standard deviation of 0.71. Lack of ICT infrastructure had 3.53 mean score and a standard deviation of 0.81. High cost of internet subscription had a mean value of 3.47 and a standard deviation of 0.76 while lack of training on ICT had 3.42 mean score and 0.88 standard deviation. This was followed by lack of

competence in handling ICT facilities with a mean value of 3.31 and a standard deviation of 0.91. High cost of ICT facilities and accessories had 3.30 mean value and standard deviation of 0.64. Also, lack of power supply had 3.23 mean score and standard deviation of 0.88 while poor income had 3.14 mean value and 1.01 standard deviation. Poor communication network had 3.12 mean score and standard deviation of 0.89. Lack of trained computer personnel had 3.04 and standard deviation of 0.92 while unavailability of spare parts had 2.86 mean score and standard deviation of 0.81. Following this was complexity in using ICT facilities with mean score of 2.85 and standard deviation of 0.87. Lack of awareness of ICT importance had 2.59 mean score and a standard



deviation of 1.19. The standard deviation values for constraints adjudged to be serious to ICT facilities use by VEAs were relatively small. This low standard deviation values implies that VEAs strongly agreed to the adjudged constraints as serious constraints to ICT facilities. Supporting the above findings, Asadu *et al.* (2013) observed that illiteracy among farmers, limited power supply, high cost of modern communication techniques, complexity of use, limited network services, lack of access to modern communication techniques and lack of skill among the extension agents constitute serious constraints to the use of ICT facilities by VEAs in Niger State. These findings also agree with a number of other studies (Arokoyo, 2005;

Omotayo, 2005) which pointed out that despite varieties of information and communication technology (ICT facilities that could be effectively used by extension agents, there are still very serious constraints to their use. Asadu *et al.* (2013) opined that these constraints are more serious in rural areas. The use of GSM (phone), computer and television is common but it is also constrained by limited network coverage, poor connectivity and poor power supply. Adebowale (2009) opined that poverty and low computer literacy constitute major challenges to the use of modern communication techniques in agricultural extension delivery services in Nigeria.

Table 3: Distribution of respondents by constraints to the use of ICT facilities by VEAs

	Extremely Serious		Very Serious		Serious		Not Serious		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Mean*	SD
Lack of internet access in the rural area	216	72.0	56	18.7	22	7.3	6	2.0	3.61*	.71
Lack of ICT infrastructure	200	66.7	76	25.3	6	2.0	18	6.0	3.53*	.81
High cost of internet subscription	173	57.7	110	36.7	1	.3	16	5.3	3.47*	.76
Lack of training on ICT	185	61.7	75	25.0	21	7.0	19	6.3	3.42*	.88
Lack of competence in handling ICT	175	58.3	51	17.0	65	21.7	9	3.0	3.31*	.91
High cost of ICT facilities and accessories	112	37.3	171	57.0	11	3.7	6	2.0	3.30*	.64
Lack of power supply	152	50.7	72	24.0	70	23.3	6	2.0	3.23*	.88
Poor income	158	52.7	47	15.7	75	25.0	20	6.7	3.14*	1.01
Poor communication network	125	41.7	100	33.3	61	20.3	14	4.7	3.12*	.89
Lack of trained computer personnel	106	35.3	128	42.7	39	13.0	27	9.0	3.04*	.92
Unavailability of spare parts	70	23.3	129	43.0	91	30.3	10	3.3	2.86*	.81
Complexity in using ICT facilities	77	25.7	120	40.0	85	28.3	18	6.0	2.85*	.87
Lack of awareness of ICT	90	30.0	81	27.0	45	15.0	84	28.0	2.59*	1.19
Inappropriate content of ICT message	65	21.7	88	29.3	52	17.3	95	31.7	2.41	1.15
Poor benefits in using ICT	58	19.3	70	23.3	37	12.3	135	45.0	2.17	1.20
I don't know where to get ICT facilities	55	18.3	30	10.0	80	26.7	135	45.0	2.02	1.13

*Serious (mean \geq 2.50)

Source: Field Survey, 2015

CONCLUSION AND RECOMMENDATIONS

ICTs have wonderful potentials to transform the agricultural sector and invariably the rural area through increased effectiveness and efficiency in information dissemination and feedback. The use is limited by several constraints and these deserve urgent attention for plausible solutions to fast-track the drive towards food and nutrition security and by extension poverty alleviation.

The following are hereby recommended by the study;

- The pre-service and in-service training of VEAs should be broadened to incorporate the ICTs tools of importance in extension work,
- Conventional and non-conventional organisations should provide ICTs tools to VEAs to facilitate the use.
- Government should urgently address all identified constraints to ICT usage.



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