

SELECTED FACTORS THAT INFLUENCE ACCESS AND USABILITY OF INFORMATION AND COMMUNICATION TECHNOLOGIES BY FARMERS IN IVO LGA, EBONYI STATE, NIGERIA.

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ABSTRACT

The study examined some factors that influenced the access and usability of ICT facilities by farmers in Ivo L.G.A., Ebonyi State, Nigeria. Multi-stage random sampling technique was used in selecting the respondents. The sample size was ninety (90) farmers. Data were collected through structured questionnaire. Descriptive and inferential statistical methods were used to achieve the objectives. The result showed that the mean age of the farmers was 42 years, while 62% of them were males. However, the result showed that majority (43%) of the farmers had primary education. The farmers had 14 years as the mean farming experience with farm size mean of 1.2 hectares. The probit regression analysis indicated that the significant factors influencing access and use of ICTs were gender, age, years of formal education and income. The coefficient of gender is significant at 1% level of probability and negatively related to access to ICTs. The coefficient of years of education was significant at 1% probability level positively related to access to ICTs which implies that the higher the educational attainment the greater access to ICTs. The coefficient of income was significant at 5% probability level and positively related to access to ICTs. This implies that the higher the income of respondents the higher the access to ICTs. Some factors that constrained effective use of ICT facilities by farmers in Ivo L.G.A include poor telecommunication network and services, inadequate power supply, poor educational background, high cost of ICT facilities. Based on the findings, it was recommended that Government should make available steady source of power supply to rural communities, Agricultural Development Project (ADP) should sponsor the airing of more agricultural programs on radio and television stations and ensuring that these are done at such times that they will be useful to the farmers, , government should help in subsidizing ICT facilities for the farmers, it is also

strongly recommended that the Government should establish television-viewing centers in the rural communities where agricultural programs can be broadcast and viewed by the farmers.

Keywords: Access, Usability, Constraints, ICT, Ivo L.G.A .

INTRODUCTION

The term Information and Communication Technology (ICT) has changed the world and affected millions of lives in ways that no one could have foreseen. The late 20th century has become known as the “information age”. It would be difficult to conduct modern day businesses and other activities without the use of ICT such as the telephone, computer, fax machine among others. CTA (1998) stressed that information is the major tool of agricultural scientists as it is required to empower them to carry out further research in their area of specialization, know what is on ground and what has been done in order to avoid unnecessary duplication of efforts and results. Information and communication technology have been defined as a range of electronic technologies which when converged in new configurations are flexible, adaptable, enabling and capable of transforming organizations and redefining social relations. From what is known of the Information and Communication Technologies in common use, there are concepts and peculiar languages to the sector. The various devices that aid the users must be known and the users have to be

proficient in deploying them, if the anticipated advantageous services must be obtained.

Food and Agriculture Organization (FAO), (1993) defined ICT as those technologies used in collecting, processing, storing, retrieving, disseminating, and implementing data and information using microelectronics, optics and telecommunications and computers. Broadly, the Technical Centre for Agriculture and Rural Cooperation (CTA, 2003) defined ICT as those information transferred by electronic means for the benefit of its users. Balderama (2009), pointed out that, there is a dearth of knowledge and information and new technologies in agriculture that is yet to be exploited, especially in most of the developing countries of which Nigeria is included. It is expected that, there should be a flow of knowledge and new information from various research institutes to the farmers (Nwaneri, 2013). With the explosion of ICT in the World, there is an expectation that, producers would be substantially empowered to channel information to agriculture. Information and Communication Technology (ICT) is also

defined as the combination of software, hardware and the means of production that allows the processing, exchange and management of knowledge and information, using a range of electronic technologies, which when covered on new configuration are flexible, adaptable, enabling and capable of transforming organization, and redefining social relation (Michiels and Van Crowder, 2001). The foregoing therefore includes computers, digital and non-digital libraries, e-mail, mobile cell phones, internet “websites” and software for operating them. The advent of ICTs has made the world a global village through the process of globalization. This means bringing the world to individuals doorsteps irrespective of the distance. This implies that those at the rural areas are no exception. The technology, has been accepted/adopted in almost all sectors of the economy, professions- example, banking, industries, commerce, mining and so on, the result has been tremendous but it does not seem so in agriculture. Researchers have doggedly worked to develop softwares for practically every business sector and agriculture, with the follow-up of training people on how to apply them. The learners themselves have shown rapid response. This study, therefore, examines some selected factors that influence the access and usability of ICT by farmers in Ivo L.G.A of Ebonyi State, Nigeria. The specific objectives of the study

were to: (i) describe the socio-economic characteristics of the farmers in Ivo LGA; (ii) identify ICT facilities available to farmers in the area; (iii) identify the factors that hinder ICT facilities use by farmers in the area and (iv) examine the factors influencing access to ICT facilities.

METHODOLOGY

The study was conducted in Ivo LGA of Ebonyi State, Nigeria. This area was chosen for the study owing to the fact that farming is the predominant occupation of the people. Ivo LGA lies between Latitudes $5^{\circ}.43^1$ and $5^{\circ}.5^1$ North of the equator and Longitudes $7^{\circ}.29^1$ and $7^{\circ}.35^1$ East of the Greenwich meridian. It has an annual rainfall range of about 1,200mm to 1,600mm and temperature range of $27^{\circ}\text{C} - 33^{\circ}\text{C}$. The main occupation of the people is arable crop farming (yam, cassava, rice among others) and rearing of livestock. The LGA is made up of 2 autonomous communities, Ishiagu and Akaeze and comprises of 32 villages. A multistage random sampling technique was used in selection of villages. First, 3 villages each were randomly selected to give a total of 6 villages. From the selected villages, 15 farmers each were randomly selected to give a total of 90 farmers. The data used for the research were obtained by means of a structured questionnaire administered as interview schedule. Data were analyzed using descriptive statistics such as

frequency distribution, mean scores and tables and inferential statistics such as probit regression analysis. Objective 1 to 3 were analyzed with frequency, percentages and mean scores while objectives 4 was realized using probit regression model. The implicit form of the model is specified as;

$$Y = f(X_1, X_2, X_3, X_4)$$

Y = access to ICT

X_1 = gender (a dummy: 1 = male, 0 = female).

X_2 = age (years)

X_3 = years of formal education

X_4 = income (naira).

RESULTS AND DISCUSSION

Socio-economic Characteristics of Farmers in the Study Area

Table 1 shows the socio-economic characteristics of the farmers. The result indicates that majority (62%) of the farmers were males. The dominance of male farmers is probably because the males own most of the farm assets including farm lands and therefore had an edge over females. This agrees with the findings of Nwaneri (2013). The study also revealed that the mean age of the farmers was 42 years. This implies that

majority of the farmers are energetic and still able to do work and willing to try out new technologies. A moderate proportion (43%) of the farmers had primary education, 33% had secondary education, 23% had tertiary education. The level of education attained by most of the farmers (primary and secondary) was not significant as to guarantee any noticeable impact in their adoption of new technologies. Nwaneri, *et al.*, (2017) observed that the more educated a farmer is the better he can adopt innovations. The mean score for farming experience of the respondents was 14 years. Nwaru (2004) and Nwaneri (2015) observed that the number of years a farmer has spent in the farming business may give an indication of the practical knowledge he has acquired. It is known that the longer years of farming experience, the more efficient the farmer becomes which will enable him to make profitable decision and put him in a better position to accept innovations. The result also showed that the mean farm size of the farmers in Ivo LGA was 1.2 hectares, this is a clear indication that the farmers were small holder farmers.

Table 1: Distribution of Farmers Based on Socio-Economic Characteristics in Ivo L.G.A of Ebonyi State, Nigeria (n=90)

Characteristics	Frequency	Percentage
Gender		
Male	56	62.2
Female	34	37.8
Age		
20 – 29	8	8.0
30 – 39	31	34.4
40 – 49	32	35.6
50 – 59	15	16.7
60 – 69	4	4.4
Mean age	41.8	
Educational level		
Primary education	39	43.3
Secondary level	30	33.3
Tertiary education	21	23.3
Farming experience (yrs)		
1 – 10	16	17.8
11 – 20	71	78.9
21 – 30	2	2.2
31 – 40	-	-
41 – 50	1	1.1
Mean	14.3	
Farm size(Ha)		
0.10 – 1.00	53	58.9
1.10 – 2.00	20	22.2
2.10 – 3.00	1.7	18.9
Mean	1.2	

Source: Field survey, 2016

Table 2 shows the percentages of the available ICT facilities to farmers and the mean scores for the utilization of the available ICT facilities among the farmers in Ivo LGA. Television, radio, telephones/GSM, and newspapers with percentage ratings of 82.20, 88.90, 61.10, and 57.80 respectively are the facilities accepted by the farmers as available in the area. By the low percentage scores of other items, they were considered as not being available by the farmers. This finding is corroborated by Chadwick (2003) who stated that agricultural development in Nigeria and other developing countries have been hampered by low level of information exchange arising from inadequate ICT facilities. The mean ratings on the use of ICT facilities among farmers in the study area shows that all the items received low mean scores. This has indicated that even

the available items were not adequately utilized by the farmers. This is apart from telephones/GSM with mean of 2.20 which indicates that farmers make use of them more than other items. The poor utilization could be attributed based on the findings to illiteracy among the farmers, inadequate power supply, high cost of ICT facilities and services, and ill – motivation of the farmers towards the adoption of the ICTs. This agrees with the findings of Okafor (2004), Ezeliora (2003) and Nwaneri, *et al.*, 2016. Nevertheless, a critical observation of the table indicates a within mean use increase for radio (1.44), television (1.40), newsletters (1.40), leaflets/handbills (1.44), and newspapers (1.44) by farmers. This could stem from the fact that some of the farmers may often get in contact with extension agents from whom they got some of the items.

Table 2: Response on Availability of ICT Facilities to Farmers and the Usability in the Area

ICT Facilities	Yes (%)	No (%)	Use of ICT (mean score)
Overhead projector	3 (3.3)	87 (96.7)	1.14
Television	74 (17.7)	16 (17.8)	1.40
Radio	80 (88.9)	10 (11.1)	1.44
Video recorder	2 (2.2)	88 997.8)	1.14
Media van	6 (6.7)	84 (93.3)	1.20
Cinema	12 (13.3)	78 (86.7)	1.20

Telephone/GSM	55 (61.1)	35 (38.9)	2.20
Computer	30 (33.3)	60 (66.7)	1.20
E-mail	7 (7.8)	83 (92.2)	1.20
Internet	3 (3.3)	87 (96.7)	1.20
Newspapers	3 (3.3)	87 (96.7)	1.40
Posters	20 (22.2)	70 (77.8)	1.39
Leaflets/handbills	20 (22.2)	70 (77.8)	1.44
Calendars	30 (33.3)	60 (66.7)	1.14
Annual report	15 (16.7)	75 (83.3)	1.39
Research bulletins	5 (5.6)	85 (94.4)	1.39
Magazines	15 (16.7)	75 (83.3)	1.20
Agricultural journals	10 (11.1)	80 (88.9)	1.14
Agricultural maps	10 (11.1)	80 (88.9)	1.14
Newspapers	52 (57.80)	38 (42.2)	1.44

Source: *Field Survey,2016.*

The major factors that hinder effective use of ICT facilities by farmers in Ivo L.G.A is shown in Table 3 which include poor telecommunication network and services, inadequate power supply, poor educational background, high cost of ICT facilities and limited circulation of print technologies. The findings on high cost of ICTs is in line with Okafor (2004) who stated that the effectiveness of the ICTs depends on provision of funds for ICT facilities and

equipments by government. Okafor and Obioha (2004) averred that ICT is capital intensive and noted that inadequate funding constitutes a major setback in the usage of ICTs which equally supported this findings. The constraints x-rayed also are in line with the views of Nwaneri, *et al.*, (2016) who noted that the major problems of using ICTs revolves around the environmental and power requirements as well as human resources, technological base and finance.

Table 3: Mean Constraints on Usability of ICT Facilities by Farmers in Ivo L.G.A.

Factors	Mean Scores
Poor telecommunication	3.89
Inadequate power supply	4.30
Poor educational background	4.16
High cost of ICT facilities and services	4.30
Lack of radio TV viewing center	3.86
Limited circulation of print technologies	4.28

Source: Field Survey, 2016

Factors Influencing Farmers Access to ICT Facilities

Table 4 shows the probit estimates of the factors influencing access to ICTs. The chi-square value was significant at 1% indicating the goodness of fit of the model. The coefficient of determination was 0.7920 indicating that 79.20% of variation in access to ICT facilities is explained by the factors included in the model. The significant factors influencing access to ICTs are gender of the respondents, years of formal education and income. The coefficient of gender was negative and statistically significant at 1% level of probability. This could be because women are more constrained by resource ownership than male farmers. The coefficient of years of education was positive and statistically

significant at 1% probability level, this implies that the higher the educational attainment, the greater the access to ICTs since level of education attained by a farmer not only increases his farm activity, but also enhances his ability to understand, evaluate and use the new production technologies resulting in higher adoption rate. The coefficient of income was positive and statistically significant at 5% probability level. This implies that the higher the income of the respondents the higher the access to ICTs. This is in line with the observations of Nwogu, (2006) when he stated that ICT applications anywhere are capital intensive. When ICT facilities are priced out of the reach of the rural dwellers, there is no way they can have access to them unless government comes to their aid.

Table 4: Probit Regression Estimates of Factors Influencing Farmers Access to ICTs.

Variable	Coefficient	Std. Err.	-Z-
Intercept	0.462	0.126	3.68***
X ₁ (gender)	- 0.456	0.104	- 4.37***
X ₂ (age)	- 0.015	0.017	- 0.91
X ₃ (education)	0.130	0.035	3.74***
X ₄ (income)	1.73e-06	7.43e-07	2.32**
Likelihood ratio chi square	18.10***		
Pseudo R ₂	0.7920		

Source: *Field survey, 2016.*

*** = significant at 1%, ** = significant at 5%

CONCLUSION AND RECOMMENDATION

The use of ICTs is the most effective way of facilitating agricultural information transfer to farmers and relaying farmers problems in form of feedback to the extension staff quickly and regularly. There is need for ICT facilities to be available and usable among farmers. In so doing, the farmers will be more effective in agricultural production. The use of ICTs involves the extent to which information technology devices are used for communication purposes. It also explains the level to which the potentialities of the technologies are harnessed for information generation and transfer. Thus, access to these devices not only implies the physical availability of equipment and methods of utilization but also the existence of the right conditions for their use in

getting information. These conditions include the ease of use or user friendliness of the technologies, regular electric power supply and availability of spare parts. Based on the findings of this study, the following recommendations were made:

This study established that the problem of, inadequate power supply hampered the utilization of some of the available ICT facilities. It is therefore recommended that Government should make available steady source of power supply to rural communities.

Agricultural Development Project (ADP) should invest in training the extension agents and farmers on usability of ICTs for information dissemination and acquisition. Such training could come in the form of seminars, conferences, workshops or train the trainers course.

Female farmers should be encouraged by extension agents to effectively participate in the use of ICTs for agricultural activities.

Agricultural Development Project (ADP) should sponsor the airing of more agricultural programs on radio and television stations ensuring that these are done at such times that they will be useful to the farmers.

It is strongly recommended that the Government should also establish television-viewing centers in the rural communities where agricultural programs can be broadcast and viewed by the farmers. Both governmental and Non governmental agencies need to promote the awareness on access and usability of ICT tools especially GPS and GIS, softwares, internet for use among farmers for improved agricultural production in the study area.

As a matter of priority, government should embark on aggressive development of rural areas, ensuring that electricity supply is regular and helping to subsidize ICTs for the farmers.

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