Perceived Attitude of Farmers towards the use of ICT Tools among small holder rice farmers in Southeast, Nigeria

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KEYWORDS

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ABSTRACT

The study examined Perceived Attitude of Farmers towards the use of ICT Tools among small holder rice farmers in Southeast, Nigeria. Specifically, it described socioeconomic characteristics of smallholder rice farmers, ascertained the perceived attitude of farmers towards the use of ICT tools, analyzed the extent of use ICT tools and determined the significant relationship between smallholder rice farmers and their level of use of ICT. Data were collected with a structured questionnaire from 476 randomly selected smallholder rice farmers. Collected data were analyzed using descriptive statistics of mean threshold and Spearman Bivariate correlation. The result showed that smallholder rice farmers were relatively young because rice farming is physically demanding and old age can pose a problem to the cultural operations. It was discovered that the use of ICT tools is a source of motivation to both the extension agents and farmers' thereby promoting learning, and ICT can be said to propel knowledge. The result on relationship between farmers and their level of use of ICT shows that a unit increase in farmer's attitude will increase the level of use of ICT tools/format by 0.237 unit. It was recommended that government and other relevant bodies should ensure that ICT facilities are installed in rural communities, necessary trainings should be slated for smallholder rice farmers on the use of ICT tools/format by appropriate authorities to boost their confidence and reliance on ICT.

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INTRODUCTION

Agriculture in Africa has a massive social and economic footprint; more than 60% of the population of Sub-Saharan Africa are smallholder farmers, and about 23% of Sub-Saharan Gross Domestic Product (GDP) comes from agriculture (Goedde, Ombaka and Pais, 2019). These smallholder farmers engage in different livestock and crops production including rice.

Rice is the primary staple food for most of the populace in the region, especially the rural area, with about 6% of global rice consumption, Africa accounts for about 4% of the world production making the continent the second largest consuming and producing region (Abdul-Gafar and Yu, 2016). According to Uba (2003 as cited by Gbughemobi, 2021), about 70% of Nigeria feeds on rice, while 30% of their cereal-based diets are also from rice.

Information Communication Technology (ICT) can be broadly described as the means through which information can be communicated for individual, societal and collective growth of a nation (Ogunyemi, 2010 and Gbughemobi, Nkamigbo and Meludu, 2021). Information and Communication Technologies (ICTs) are becoming more and more important in connecting farmers and providing information. ICTs help keep young people involved in agriculture.

MATERIALS AND METHOD

The study was conducted in Southeast Nigeria. It is one of the six geopolitical zones of Nigeria. The zone comprises of Imo, Anambra, Abia, Enugu and Ebonyi States. The region is located between latitude 5°45'00"N and longitude 8°30'00"E. It is bordered by the Niger River in the west and has an administrative and cultural border with the Northern region of Nigeria. The eastern boundary lies between the border of Nigeria and Cameroon and the Southern coast is along the Gulf of Guinea. The total surface area of the region was approximately 76000 square kilometers (29,400sq m).The region has three types of vegetation namely mangrove swamps, tropical rainforest and guinea savannah.

Population of the study

The population of the study consists of all the rice farmers in Southeastern and a multi-stage sampling technique was adopted to select 480 respondents within States in Southeast, Nigeria. The first stage involved purposive selection of three states with a high concentration of rice farmers in Southeast, Nigeria; (Anambra, Enugu and Ebonyi States). The second stage also involved the purposive selection of two (2) agricultural zones from each State making it a total of six (6) zones. The third stage involved the purposive selection of two (2) Local Governments Areas (LGAs) from each of the six agricultural zones based on high concentration of rice farmers making it a total of twelve (12). The fourth stage involved the random selection of two (2) communities from each local government making it a total of twenty-four (24) communities. Finally, twenty (20) rice farmers were randomly selected from each of the 24 communities, giving a total sample of four hundred and eighty (480) respondents for the study. The data were analyzed using descriptive statistics which included chart, frequency, percentage and mean, mean threshold of 5 Point Likert Scale and Spearman bivariate correlation of non-parametric tools.

Instrument for data collection

Qualitative and quantitative methods were used to collect data from the respondents. Qualitative data were collected using focus group discussion (FGD), this is used to gather first-hand observation of the process of individuals discussing issues. It captures real-life data in the social environment (Babbie, 2001). It brings out aspects of the topic that were not anticipated by the researcher. FGD also helped generate interview topics, questionnaire items and can help the researcher judge the adequacy of the analysis and help in the interpretation of the situation (McQueen and Knussen, 2002). Quantitative data would also be collected using a well-structured questionnaire. The researcher employed the use of Survey CTO which is a powerful, reliable and easy to use survey platform that allows one to at least transport and process data for academic research.

Measurement of variables

Independent variable: The independent variables for the study include:

The personal and enterprise characteristics of the respondent measured as follows:
Sex: Sex was measured as male = 1 or female = 0

Age: Age was measured as the actual age (in years)

Marital status: single =1, married = 2, widow (er) = 3, separated = 4

Educational qualification: Years spent in school.

Years of farming experience: The respondents were asked to state the total number of years they have spent in farming.

Dependent variables: A dependent variable is a variable whose variation depends on that of another, it is gotten as a result of the manipulation of another variable. For the purpose of this study, the dependent variable is:

RESULTS AND DISCUSSION

Socio-economic characteristics of smallholder rice Farmers

Table 1 shows that majority (61.3%) of the rice farmers in the study area were male. This implies that rice farming in the study area were male dominated, this could be owing to the fact that rice farming is masculine in nature. . This agrees with findings of Efah and Kuye (2015) which records that there were more male farmers than females in their study area. The study found out that the greater proportion (31.9%) of the farmers were within the age bracket of 31 – 40 years with the mean age of 37.93. The implication is that rice farmers in the area are still in their active farm age. At the mean age, the use of ICT is expected to be high. In support of this Ajah and Ajah (2014) opines that rice farming is physically demanding and old age can pose a problem to the cultural operations. Majority (65.5%) of the farmers were married, thus, married people dominated rice farming in the area. This agrees with the findings of Agbolahor, Obunyela and Adebowale (2012). This agrees with Kuye and Ettah (2015) who states that relevance of the literacy level of a farmer is relevant to farm productivity and production efficiency. The result revealed that farmers have spent 9 years (9.28) in rice farming in the study area.

Table 1: Socio-economic characteristics of Rice Farmers (n = 476)

Variable	Frequency	Percentage (%)	Mean
Sex:			
Male	292	61.3	
Female	184	38.7	
Age (years):			
≤ 20	16	3.4	
21 – 30	130	27.3	37.93
31 – 40	152	31.9	
41 – 50	124	26.0	
51 – 60	48	10.1	
61 and above	6	1.3	
Marital status			
Single	140	29.4	
Married	312	65.5	
Divorced	24	5.0	
Level of education			
Primary school uncompleted	46	9.7	
Primary school	111	23.3	
W.A.S.C/NECO	156	32.8	10.29
HND/B.Sc.	121	25.4	
M.Sc./PhD	42	8.8	
Farming experience (years):			
≤ 5	239	50.2	
6 -10	94	19.7	
11 – 15	27	5.7	9.28
16 – 20	67	14.1	
21 and above	49	10.3	
Primary occupation			
Farming	307	64.5	
Trading	26	5.5	
Art and craft	35	7.3	
Civil servant	108	22.7	
Secondary occupation			
Farming	84	17.7	
Trading	298	62.6	
Art and craft	74	15.5	
Civil servant	20	4.2	
Household size			
≤ 5	257	54.0	
6 – 10	186	39.1	5.56
11 and above	33	6.9	
Farm size (plot)			
<= 10	230	48.3	
11 – 20	73	15.3	
21 – 30	48	10.1	11.42
31 and above	125	26.3	
Annual income from rice (₦)			
≤ 50,000	11	2.3	
50,001 - 150,000	92	19.3	
150,001 - 250,000	48	10.1	426,499.76
250,001 - 350,000	57	12.0	
350,001 and above	268	56.3	

Source: Field Survey Data, 2021.

Attitude of Farmers towards the use of ICT Tools

The farmers' attitude to ICT which influenced their thought is presented in Table 2. The information was subjected to a 5 Point Likert Scale to determine the mean threshold of farmer's attitude. The mean threshold of less than 3.0 was said to have a poor attitude while the mean threshold of 3.0 and above was said to have a satisfactory attitude to the use of ICT. Thus, based on the 11 items of farmer's attitude captured, 6 had a mean threshold of 3.0 and were; ICT tools help in sourcing of rice innovation. ICT tools can be used to circulate innovations easily, ICT training for extension agents will enhance their ability to use ICT tools for sourcing and dissemination of innovation. The use of ICT tools is a source of motivation to both the extension agents and farmers' thereby promoting learning, and ICT can be said to propel knowledge. The cluster mean of 3.01 shows that the general farmers have a satisfactory attitude to ICT, while the standard deviation of 0.96 shows that their individual responses varied enough to make logical conclusions. This finding is in line with Kabir (2015) but contradicts the findings of Ajayi, Alabi and Okalawon (2018) who noted that farmers have a negative attitude towards ICT use.

Table 2: The Distribution of Farmers' Attitude to the Thought about the Use of ICT Tools

S/N.	Variables	SDA	DA	SWA	A	SA	Mean	Std. Dev.	Decision
1.	ICT tools help in sourcing of rice innovation	31	115	103	140	87	3.29	1.20	Favorable attitude
2.	The use of ICT tools can be used to circulate innovations easily	12	126	157	122	59	3.19	1.04	Favorable attitude
3.	ICT training for extension agents will enhance their ability to use ICT tools for sourcing and dissemination of innovation	6	88	190	153	39	3.28	0.90	Favorable attitude
4.	ICT tools is a means of getting relevant material and new findings	0	103	92	208	73	3.53	1.00	Favorable attitude
5.	The use of ICT tools is a source of motivation to both the extension agents and farmers thereby promoting learning	6	87	175	166	42	3.32	0.91	Favorable attitude
6.	Sourcing for innovation through the ICT tools is not helpful to the extension agent	7	290	99	69	11	2.55	0.84	Unfavourable attitude
7.	Large numbers of farmers fail to adopt innovation disseminated by extension agent due to the use of ICT tool	23	197	114	99	43	2.88	1.08	Unfavourable attitude
8.	ICT tools coverage is readily available in areas extension agent disseminates	15	229	169	63	0	2.59	0.76	Unfavourable attitude
9.	Getting relevant materials for learning purpose cannot be achieved via ICT tools	42	251	133	39	11	2.42	0.85	Unfavourable attitude
10.	The use of ICT tools as a means of communication between extension agent does not promote learning	55	274	81	34	32	2.4	1.01	Unfavourable attitude
11.	ICT can be said to propel knowledge	0	66	123	189	98	3.67	0.96	Favorable attitude
	Cluster Mean						3.01	0.96	Satisfactory

Source: Field Survey Data, 2021.

Extent of Use of ICT Tools/Format

The extent of use of ICTs tools/format in the study area is presented in Table 3. The information on extent of use of ICT tools/format was captured and subjected to a 5 Point Likert Scale to determine the mean threshold of extent of use of ICT tools/format. The mean threshold of less than 3.0 shows that farmers did not agree to the use of ICT tools/format, while the mean threshold of 3.0 and above shows the farmers agree to the use of ICT tools/format. Thus, based on the 24 items of extent of use of ICT tools/format captured, only 5 had a mean threshold of 3.0 and they were; Radio set, Television, Mobile Phone, Short Message Services, and On-line Magazines. The cluster mean of 2.10 shows that the majority of the farmers did not use the ICT tools/format in the area, while the standard deviation of 0.93 shows that their individual responses varied enough to make logical conclusions since ICT tools are not readily available and are poorly accessible to the farmers in the study area, the usage is expected to be equally poor. Again most of these ICT tools are sophisticated and require expertise in operation and usage, this will equally discourage the farmers from its usage and adoption.

Table 3: Distribution of the Extent of Usage of these ICT Tools/Format

S/N	Tools	Never Use	Rarely	Moderately	Often	Very often	Mean	Decision
1.	Radio set	10	0	7	102	357	4.67	Use
2.	Television	10	24	71	178	193	4.09	Use
3.	Facebook	144	36	153	83	60	2.75	Not use
4.	Mobile Phone	11	23	17	242	183	4.18	Use
5.	Short Message Services	69	28	272	43	64	3.01	Use
6.	CD-ROM	282	67	60	47	20	1.86	Not use
7.	Video CD Player	262	72	89	40	13	1.89	Not use
8.	Computer System	210	63	69	70	64	2.4	Not use
9.	Internet	161	72	120	59	64	2.57	Not use
10.	Digital Camera	351	63	13	36	13	1.52	Not use
11.	YouTube	292	89	51	31	13	1.71	Not use
12.	Multimedia Projector	383	46	28	13	6	1.35	Not use
13.	Digital video Disk (DVD)	317	80	53	20	6	1.57	Not use
14.	E-mail	408	61	7	0	0	1.16	Not use
15.	On-line Magazines	127	21	50	160	118	3.25	Use
16.	GPRS	219	81	66	76	34	2.21	Not use
17.	Whatsapp	388	34	34	20	0	1.34	Not use
18.	Instagram	413	16	28	19	0	1.27	Not use
19.	Video Conferencing	433	36	7	0	0	1.11	Not use
20.	Tele Conferencing	283	91	18	64	20	1.84	Not use
21.	Robots	399	63	7	7	0	1.21	Not use
22.	Twitter	230	234	12	0	0	1.11	Not use
23.	Likee (Online Video posting)	400	62	7	7	0	1.2	Not use
24.	Mixler (Online Radio)	425	51	0	0	0	1.11	Not use
	Cluster mean					2.10	0.93	Not use

Source: Field Survey Data, 2021.

Relationship between the farmer attitude and their level of use of ICT.

The relationship between farmer's attitude and the level of use of ICT tools/format is in Table 4. The Spearman Bivariate correlation for non-parametric tool conducted to test the correlation between farmer's attitude and the level of use of ICT tools/format in the study area was positive and significant at two tailed probability level of 0.01. This implies that a unit increase in farmer's attitude will increase the level of use of ICT tools/format by 0.237 unit. This justifies that the null hypothesis five was rejected. Thus, farmers' attitude correlate with the level of use of ICT tools/format. This result is in line with the findings of Sylem and Raj (2015).

Table 4. Relationship between the farmer attitude and their level of use of ICT Table 4: (n = 476)

			Attitude	Use
Spearman's rho	Attitude	Correlation Coefficient	1.000	0.237**
		Sig. (2-tailed)	.	0.000
		N	476	476
	Use	Correlation Coefficient	0.237**	1.000
		Sig. (2-tailed)	0.000	.
		N	476	476

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Survey Data, 2021. Bivariate correlation matrix

CONCLUSION AND RECOMMENDATIONS

Findings on socioeconomic characteristics showed that the majority (61.3%) of the farmers are male; the mean age of the farmers was found to be 38 years while the majority (65.5%) of them was married. The mean years spent in formal education was 10 years. The mean farming experience was 9 years, while the mean household size, farm size and annual income from rice was 5 persons, 11.42 plots, and ₦426,499.76 respectively. Also, the primary occupation was majorly (64.5%) farmers. The farmer's attitude to ICT which influenced their thought were; ICT tools help in sourcing of rice innovation, The use of ICT tools can be used to circulate innovations easily, ICT training for extension agents will enhance their ability to use ICT tools for sourcing and dissemination of innovation, The use of ICT tools is a source of motivation to both the extension agents and farmers thereby promoting learning, and ICT can be said to

propel knowledge. Also, ICT tools were not readily available and were poorly accessible to the farmers in the study area. Most of these ICT tools require expertise in operation and usage and thus equally discouraged farmers from its use and adoption.

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