

Extension Agents' Perception on the Use of ICTs for Agricultural Extension Services in Kwara State, Nigeria

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Abstracts. The application of modern communication technologies and digital devices to agricultural extension service deliveries could enhance the productivity of the extension agents through provision of accurate, timely and relevant information to the farmers. This study examined the Extension agents' Perception on the use of ICTs for agricultural extension services in Kwara State, Nigeria. About 105 extension agents were randomly selected for the study. Statistical tools such as frequency count, percentage and mean score were used to analyse the data. The result showed that about 98.1 % of the respondents were willing to use ICTs devices for agricultural extension services. The usage of mobile phone for calls (mean =2.88) was the most frequently used ICTs. Digital/ICTs makes extension agents to easily linkup with researchers in order to solve the farmers' problems (mean =4.47) was highest ranked perception statement. High cost of the Digital/ICTs devices (mean=2.62) was the most severe factor limiting the use of ICTs for extension services. The study therefore recommends that the Extension agents should be empowered to be able to have access and use the various ICTs for agricultural extension activities as they were willing to use it.

Keywords. Digital, ICTs, Perception, Use, Agricultural Services.

1. Introduction

Agricultural extension is a process of communication and education that seeks to share the latest knowledge, procedures and innovation with farmers and other rural people, with the purpose of imparting novel information and technology that can enhance their livelihoods. So, extension agents are expected to be well informed so as to meet the needs of the farmers. Extension agents are expected to provide information on new farming techniques to the farmers. Agricultural extension is a platform that provides services that enhance the output, income and livelihoods of farmers and other rural people through educational and communication methods [1,2]. Extension service links the farmers and rural people to innovation. Therefore, it is important that the extension agents have access to

Information and Communication Technologies (ICTs) in information gathering and dissemination to the farmers and other end users.

The use of ICTs is fast gaining grounds in developing countries, and is being applied in several fields of human endeavour including agricultural extension services. The use of ICTs has helped in solving several agricultural related problems such as site measurement and access to electronic information on production practices [3]. [4] defined ICTs as a range of electronic technologies which when converged in a new configuration are flexible, adaptable, enabling and capable of transforming organizations and redefining social relations. Information communication technologies (ICTs) are set of activities that enable the capturing, storage, processing, transmission and display of information by electronic means [5].

The use of ICTs helps to reduce information asymmetry and also provides climate smart information to the smallholder farmers [6]. The use of ICTs for agricultural extension services have made information/data gathering and dissemination easier for the extension personnels [7,8]. Application of modern communication technologies and digital devices to agricultural extension service deliveries could enhance the productivity of the extension agents through provision of accurate, timely and relevant information to the farmers. This will result in enhancing the output and incomes of farmers. The adequate and timely provision of agricultural information through the use of ICTs by the extension agents could enhance the livelihoods of the farmers in rural areas.

The study on the extension agents' perception on the use of ICTs for agricultural extension services is important as Samansiri, [9] reported that there are huge gaps between the information sources and the information users in developing countries. Also, Barrett [10] reported that effective communication between various stakeholders of the extension system is essential for enhancing the productivity of farmers.

Also, this study is important as there is paucity of information on the extension agents' perception on the use of ICTs for agricultural extension services in study area. Therefore, there is the need to determine the extension agents' perception on the use of ICTs for agricultural extension services in Kwara State, Nigeria. The specific Objectives were to:

- Identify the socio-economic characteristics of the respondents in the study area,
- Assess the extent of use of ICTs for extension services in the study area.
- Examine the Extension agents' Perception on the use of ICTs for Agricultural Extension services in the study area.
- Determine the factors limiting the use of ICTs for Agricultural extension services in the study area.

2. Methodology

The study was carried out in Kwara State, Nigeria. The state is one of the 36 states of the Federal Republic of Nigeria that was created in 1967. The state has a land area of 32,500 square Kilometers and a population of about 2.3million people [11]. The State has 16 local government areas (LGAs). The state is predominantly agriculture based. The arable crops grown in the state include rice, cassava, beans, yam, and maize. One hundred and five extension agents were randomly selected for the study. The extent of use of ICTs devices was measured on a 3-point likert type scale where Never = 1, Occasionally=2 and Always=3. The extension agents' perception on the use of ICTS for agricultural extension services was measured on a 5-Point likert typed scale where strongly disagreed = 1, disagreed = 2, neutral = 3, agreed = 4 and strongly agreed = 5. The factors affecting the use of ICTs for agricultural extension services was measured on 3 – point likert typed scale where not a factor = 1, less score = 2 and highly scored = 3. The statistical tools used to analysed the data were frequency count, percentages and mean.

3. Result and Discussion

3.1. Socio-Economic Characteristics of Respondents

The result in Table 1 showed that about 69.5% of the respondents were male. This denotes that agricultural extension service in the study area is dominated by the males. This finding affirmed earlier reports that majority of public extension agents in Kwara State was mainly male [12, 13]. The average age of the respondents was 39.9 years. This implies that the extension agents in the study area are within the active age bracket. About 55.2% of the respondents had bachelor degree. This implies that higher percentage of the extension agents in the study area were graduates. The average income was 66,005.71 Naira. The average income of the respondents was 10.7 years. This implies that the extension agents have some years of experience in extension activities. About 98.1 % of the respondents were willing to use ICTs devices for agricultural extension activities. This implies that majority of the extension agents in the study area are ICTs-Ready. This result is in line with the findings of Ifabiyi & Abdulrahman [2] that reported that majority (87.6%) of the extension agents were somewhat ICT-Ready in Kwara State, Nigeria.

Table 1. Distribution of respondent by socio-economic characteristics (n=105).

Variables	Frequency	Percentage	Mean	Standard Dev.
Sex				
Male	73	69.5		
Female	32	30.5		
Age (years)				
≤ 30	7	6.7		
31 – 40	51	48.6	39.9	6.681
41 – 50	41	39.0		
≥ 51	6	5.7		
Marital Status				
Single	5	4.8		
Married	100	95.2		
Educational level				
Secondary	0	0.0		
OND/NCE	7	6.7		
HND	36	34.3		
Bachelor	58	55.2		
MSc	4	3.8		
Monthly income			66,005.71	18791.742
≤ 50,000	23	21.9		
50,001 – 100,000	78	74.3		
100,001 – 150,000	4	3.8		
Years of Service/experience			10.7	4.475
≤ 5	13	12.4		
6 – 10	38	36.2		
11 – 15	39	37.1		
Above 15	15	14.3		
Household size			6	2.472
≤ 5	63	60.0		
6 – 10	39	37.1		
Above 10	3	2.9		
Membership of professional association				
Yes	90	85.7		
No	15	14.3		
Willingness to use ICTs devices				
Yes	103	98.1		
No	2	1.9		

Sources: Field Survey, 2023

3.2. The Extent of Use of ICTs for Agricultural Extension services

The result in Table 2 showed that the use of mobile phone for calls (mean =2.88) was ranked first for the extent of use of ICTs. Smart phones (mean =2.44) was ranked second and GPS devices (mean =2.35) was ranked third. This finding implies that mobile phones for calls, smart phone and GPS device were the foremost ICTs/digital devices used by extension agents in Kwara State.

Table 2. Distribution of respondents by extent of use of the ICTs.

Digital Devices	Never	Occasionally	Always	Mean	SD	Rank
Mobile Phones for Calls	0	13(12.4)	92(87.6)	2.88	0.33	1 st
Smart Phones	2(1.9)	55(52.4)	48(45.7)	2.44	0.54	2 nd
GPS Device	8(7.6)	52(49.5)	45(42.9)	2.35	0.62	3 rd
Printer	11(10.5)	62(59.0)	32(30.5)	2.20	0.61	4 th
Photocopier	14(13.3)	75(71.4)	16(15.2)	2.02	0.54	5 th
Laptop Computer	34(32.4)	36(34.3)	35(33.3)	2.01	0.81	6 th
Digital Camera	33(31.4)	44(41.9)	28(26.7)	1.95	0.76	7 th
Tablets Computer	33(31.4)	49(46.7)	23(21.9)	1.90	0.73	8 th
Speakers	14(13.3)	87(82.9)	4(3.8)	1.90	0.41	9 th
Scanners	29(27.6)	60(57.1)	16(15.2)	1.88	0.65	10 th
Radio set	43(41.0)	52(49.5)	10(9.5)	1.69	0.64	11 th
Projector	46(43.8)	48(45.7)	11(10.5)	1.67	0.66	12 th
TV stations Decoder	57(54.3)	27(25.7)	21(20.0)	1.66	0.79	13 th
Desktop Computer	50(47.6)	47(44.8)	8(7.6)	1.60	0.63	14 th
Television set	56(53.3)	41(39.0)	8(7.6)	1.54	0.64	15 th
DVD Player	59(56.2)	44(41.9)	2(1.9)	1.46	0.54	16 th

Source: Field survey, 2023

3.3. Extension Agents' Perception on the Use of ICTs for Agricultural Extension Services

The result in Table 3 revealed that the statement that Digital/ICTs makes extension agents to easily linkup with researchers in order solve the farmers' problems (mean =4.47) was highest ranked perception statement. Digital/ICTs makes extension service delivery to be faster (mean =4.46) was ranked second and Digital/ICTs helps extension agents to facilitate marketing of produce for the farmers (mean =4.45) was ranked third. This result shows the importance of ICTs for effective agricultural extension service deliveries.

Table 3. Distribution of respondents on their Perception on the use of ICTs for Agricultural Extension Services.

Perception Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD	Rank
Digital/ICTs makes extension agents to easily linkup with researchers in order solve the farmers' problems.	0	0	2(1.9)	52(49.5)	51(48.6)	4.47	0.54	1 st
Digital/ICTs makes extension service delivery to be faster	0	0	0	57(54.3)	48(45.7)	4.46	0.50	2 nd
Digital/ICTs helps Extension Agents to facilitate marketing of produce for the farmers.	0	0	2(1.9)	54(51.4)	49(46.7)	4.45	0.54	3 rd
It enhances the efficiency of Extension agents.	0	0	0	59(56.2)	46(43.8)	4.44	0.49	4 th
Digital/ICTs facilitates communication between the farmers and the extension	0	0	0	71(67.6)	34(32.4)	4.32	0.47	5 th

Perception Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD	Rank
agents. It makes information accessible for the Extension agents.	2(1.9)	3(2.9)	0	60(57.1)	40(38.1)	4.27	0.78	6 th
Digital/ICTs Facilitate timely decision making	0	0	4(3.8)	71(67.6)	30(28.6)	4.25	0.52	7 th
Digital/ICTs helps to empower rural people	6(5.7)	36(34.3)	8(7.6)	40(38.1)	15(14.3)	3.21	1.22	8 th
Digital/ICTs Makes Extension agents to abstain from visiting remote areas.	4(3.8)	50(47.6)	14(13.3)	34(32.4)	3(2.9)	2.83	1.02	9 th
Makes Extension agents to be lazy.	17(16.2)	65(61.9)	20(19.0)	3(2.9)	0	2.09	0.68	10 th

Sources: Field Survey, 2023

3.4. Factors Affecting the Use of ICTs for Agricultural Extension Activities

The result displayed in Table 4 revealed that the high cost of the Digital/ICTs devices (mean=2.62) was the most severe factor and it was ranked first, unavailability of Digital/ICTs hardwares for official assignment (mean=2.60) ranked second and inadequate electricity supply (mean=2.50) ranked third. This imply that high cost of the Digital/ICTs devices, unavailability of Digital/ICTs hardwares for official assignment and inadequate electricity supply were the leading factors affecting extension agents to use digital/ICTs for agricultural extension activities in the study area. This finding corroborates [14] who reported that the use of ICT and digital device was severely hindered by inadequate electricity supply and poor internet/signal coverage among extension agents in Kwara State, Nigeria.

Table 4. Factors affecting the Use of Digital/ICTs for Agricultural Extension Activities.

Factors	Not a factor	Less Severe	Highly Severe	Mean	SD	Rank
High cost of the Digital/ICTs devices	1(1.0)	38(36.2)	66(62.9)	2.62	.507	1 st
Unavailability of Digital/ICTs hardwares for official assignment.	2(1.9)	38(36.2)	65(61.9)	2.60	.530	2 nd
Inadequate electricity supply	1(1.0)	41(39.0)	63(60.0)	2.59	.513	3 rd
High cost of repair/maintenance	3(2.9)	48(45.7)	54(51.4)	2.49	.557	4 th
Inadequate technical know-how	0	54(51.4)	51(48.6)	2.49	.502	5 th
Poor Internet/signal coverage	5(4.8)	43(41.0)	57(54.3)	2.50	.590	6 th
High cost of tariff	10(9.5)	45(42.9)	50(47.6)	2.38	.656	7 th
Lack of customer care centers	36(34.3)	35(33.3)	34(32.4)	1.98	.820	8 th

Sources: Field Survey, 2023

Conclusion

According to the findings of the study. The study concluded that majority of the extension agents were males, were still young and educated. Majority of the respondents were willing to use ICTs for the Extension activities. Digital/ICTs makes extension agents to easily linkup with researchers to solve in order solve the farmers' problem was highest ranked perception statement. The high cost of the Digital/ICTs devices was the most severe factor limiting the use of ICTs by the extension agents in the study area.

Recommendations

Based on conclusion drawn from the findings:

- Extension agents should be empowered to be able to have access and use the various ICTs for agricultural extension activities as they are willing to use it.

- There should be provision of subsidized ICT devices to the extension agents so as to enhance their work productivity
- There should be timely and continuous training on the use of ICTs for the extension agents so as to enhance their efficiency.

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