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Relationship Between Information Communication Technology and Adoption of Improved Cassava Technologies in Edo State, Nigeria

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Abstract

This study assessed the relationship between information communication technology and adoption of improved cassava technologies in Edo State. Data for the study were obtained by use of questionnaire. Multistage random sampling technique was employed to select 270 respondents. Descriptive statistics were used to analyse the data. The result revealed that the mean age of respondents was 50years, mean family size was 8 and mean farm size was 3.5ha. Radio was the most readily available (80%), accessible (78%) and used (79%) mass media channel by respondents. This was followed by television channel with score (63%) for availability, accessibility (58%) by respondents and used (56%) by respondents. Other channels which include newspapers, mobile cinema/rural outdoor broadcast, extension guide/leaflets scored poorly. With radio channel whose (coefficient 0.20) was more effective in awareness creation, while television whose (coefficient 0.168) was more effective in persuading farmers to adopt new ideas. A radio/television broadcast time of 6.00pm-8.00pm and broadcast duration of 30minutes was termed ideal by respondents. Use of radio, television (5% significance level) had a significant relationship with respondents' awareness of technologies. Also there was a significant relationship between availability, accessibility and use of channels and respondents' adoption of improved agricultural technologies. Consequently, it was recommended that ADPs should intensify the extensive and intensive usage of radio and television media in promoting awareness and adoption of agricultural technologies among farmers in Edo State, Nigeria.

Keywords: *ICT Channels, Adoption, Improved Cassava Technologies*

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Introduction

Information Communication Technology (ICT) is very important to every profession in Nigeria, Agricultural extension and entrepreneurship inclusive. Abolade and Yusuf (2005) defined Information and Communication Technology that within a very short time has become one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the ongoing reading, writing and numeracy.

Crede and Mansell (1998) stated that Information technology is critically important for sustainable development in developing countries. The ICT tools that have great potential for use in agricultural extension include radio, television, telephone, short message service(SON),the web, search engines, packet digital assistants ,cameras ,video, e-mail, computer ,c d -rom, dvd, rural radio, contact, data base systems, web publishing, internet and so on. Okwu and Obinne (2000), however identified the main problem of agricultural development in Nigeria as that of transfer of improved agricultural technologies to farmers and not lack of technology per se.

Lawal (2000) noted that between 1995 and 1999, upon the withdrawal of World Bank assistance, most of the ADPs in Nigeria had funding from IFAD(44%), Federal Government of Nigeria (13%) and State Government (43%). From year 2001 to date, it has been relatively difficult to meet the budget needs of the Agricultural extension system in Nigeria. The current funding situation has been precarious in terms of both limited and unreliable provision of operating resources.

The Agricultural Development programmes (ADPs) strategy cantered mainly on disseminating proven, simple, low-risk and profitable agricultural technology to farmers through demonstrations involving them and extension agents (Edo ADP, 2003). Extension organization such as Agricultural Development Programmes in Nigeria were put in place to render services to the farm people to improve their standard of living and ensure agricultural development and overall national development. The ADP was able to make remarkable achievements and overall national development.

Up to 1996 when the World Bank loan was still on and when the Federal and State Governments were paying their counterpart funding. However, the situation is not the same today and the ADPs in the majority of the states in Nigeria stand just as symbols of past glory (Ewansiha, 2006).

The questions therefore are: How are ADPs able to carry out the numerous tasks of disseminating agricultural technologies to farmers under limited funding from state government with insufficient extension agents in the field at the zones? This study will proffer some alternative measures ADP could adopt through effective use of information communication technology (ICT) to remain relevant in extension services delivery to farmers in Nigeria.

Objectives of the study.

The general objective of this study was to assess the relationship between information communication technology and adoption of improved cassava technologies in Edo State, while the specific objectives were to:

(i) examine the socio-economic characteristics of the respondents in Edo State;
(ii) identify the mass media channel of communication most readily accessible to farmers in Edo State;
(iii) identify the mass media channel most preferred by farmers in the study area.
(iv) assess the most appropriate time of outreach of these channels to farming households in Edo State;
(v) determine farmers' awareness level of selected cassava related messages disseminated through the mass media; and
(vi) assess farmers' adoption level of some disseminated messages in Edo State.

Hypotheses

The hypotheses tested in this study were

HO_1: There is no significant relationship between farmers' use of mass media channels And their awareness of cassava related technologies.

HO_2: There is no significant relationship between farmers' use of mass media channel and Their adoption of cassava related technologies.

HO_3: There is no significant relationship between availability and accessibility of mass media Channel in relation to respondents' adoption of improved technologies.

Methodology

This study was conducted in Edo State which is one of the 36 states in Nigeria. The state lies between latitude 5.4^0 and 6.57^0 East of Greenwich meridian and latitude 5.15^0 North of the Equator. The state is bordered by Kogi state in the North, Delta state in the East and Ogun/ Ondo state in the west. Edo state is in the rainforest zone with annual Rainfall of 1,300mm-2300mm per annual. It has a landmass of 19,035km2.About 60% of
this land is arable land (Edo ADP,2000).
The National population census of 2006 put Edo state at 3,218,323 made up of 1,640,641 males and 1,577,871females (NPC, 2006). It has 18 local Government areas and Agriculture is the source of gainful employment and livelihood for over 60% of the state population. It is estimated that there are over 180,000 farm families with an average family size of 7 persons per household in this state. (Edo ADP, 2003).
A multistage sampling technique was used in selecting the respondents. At stage 1, from each of 3 senatorial zones in Edo state,9 Blocks representing 9 local government areas were selected. At stage 2, from each zone,3 Blocks were selected. From each block ,27 respondents were randomly selected. At stage 3, a purposive sampling technique was used to select one village area that had the highest participating farmer out of 3 participating villages in each local government area, from each block. At stage 4, a systematic random sampling technique was used to ten percent (10%) from the sampling frame of 270 participating farmers from the selected villages. This was to serve as a control.
This gave a total of two hundred and seventy participating farmers from twenty-seven participating villages used for this study. Descriptive statistics such as percentage scores and means were used to analyse the data. Multiple regression and t-statistics were used for analysing results of the three hypotheses.

Result and Discussion.

Table 1 shows that the age range of 53-58 had the highest percentage which was 34.1%, With a standard deviation of 8.43. This implies that most of the respondents were of middle age signifying that they were within the agricultural productive age range of 30-50years as quoted by Food and Agricultural Organization (FAO,2005). Also, the findings revealed that the male respondents were 214 representing 79.1% while females were 56 representing 20.9%. This implied that the respondents were male dominance. More females need to embrace farming and other related occupations as their means of livelihood. The findings further reveals that 96.7% of the respondents were married, 3.3% widow and none single. Respondents by social values were responsible adults who were dependents.

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Table 1: Socio-economic characteristics of farmers.

Variable	Percentage
Age in years	
<35	6.3
35 – 40	8.9
41 – 46	25.9
47 – 52	10.4
53 – 58	34.1
59 – 65	14.4
Gender	
Male	79.3
Female	20.7
Marital status	
Married	79.3
Single	--
Widow	20.7
Farming experience (**years**)	
1 – 4	3.0
5 – 10	19.6
11 – 16	45.2
17 – 22	10.7
23 – 28	9.6
29 – 36	9.7
37 and above	2.2
Level of education	
No formal Education	19.3
Completed Primary school	33.3
Completed junior secondary school	8.9
Completed senior secondary school	22.6
Completed tertiary education	15.9
Farm size (Ha)	
1 – 4	79.0
4.1 -8	13.0
8.1 -12	8.0
Household size	
<4	2.2
4 – 7	62.2
8 – 10	27.8
12 - 14	7.8

Source: Field Survey, 201 3

The result also shows that 60.3% of the respondents had farm size of 2-3hectares.The result implied, that farmers were within the range of small holder farmers. This supported the findings of Salau, E.S Saingbe, N.D and Garba, M.N (2013) in a study of Agricultural information needs of small holder farmers in central agricultural zones of Nasarawa state which revealed that the majority (68%) of the respondents had farm size ranging between 1-5hectares. Size of farmland is expected to aid the adoption of new technologies y farmers because farmers that lack enough farmland cannot sacrifice their land for trials of new technology. The result further showed that the mean household size for the respondents was 8 persons per family. This implies that the respondents had a relatively large household size which has an implication for labour availability for farm work. The result agrees with the findings of Chianu and Tsuji (2004) who reported that farmers with large family size are likely to adopt some soil improvement technology due to sufficient labour. This suggests that the respondents had adequate family labour to cultivate large farms.

Availability of Mass Media Channels in Edo State.

Table 2 shows that the most readily available mass media channel to respondents was radio (80%), followed by television (63%), newspaper (34%), extension guide (17%).The least available mass media channel was rural cinema (6%).This finding implies that radio was the most readily available channel to respondents as it was available to(80%) of them. This is corroborated by (Annary, 1978) who reported that no village seems so remote that radio at least does not reach it. Also, according to Adebayo (1997), portable transistor set seem to be widely available in many Nigeria villages.

Table 2: Availability of mass media channels in Edo State

Channels	Percentage
Radio	80
Television	62.2
Rural/Mobile cinema	5.5
Newspaper	34
Extension guide/leaflets	16.6

*Multiple responses

Source: Field survey,2013.

Level of Respondents' Adoption of Cassava Production Technologies in Edo state.

Table 3 reveals the adoption of some cassava related technologies by respondents in Edo state. This was because they became aware of these technologies through mass media channels.

Table 3: Respondents' adoption level of cassava production technologies in Edo State

Technologies	Percentage
Improved Cassava Variety	40.9
Spacing/Planting density	53.8
Pesticide application	4.3
Fertilizer application	31.2
Post –Harvest Storage	9.7
Processing Technologies	8.6

*multiple responses hence total exceed 270

Source: Field survey, 2013

Adoption of spacing/plant density had the highest percentage (54%), followed by improved cassava varieties (41%), fertilizer application (31%), post-harvest (10%), storage and processing technologies (9%), and pesticide application (4%).Table 3 also reveals that technologies that required special practical skills acquired mainly through demonstrations had low adoption level. The relative low adoption response recorded in this study was supports the finding of Adebayo, (1997) that if the aim of communication is to create awareness, mass media channel became relevant but in the stage of evaluation and trial, face to face and group methods should be used.

Relationship Between Availability, Accessibility and Use of Mass Media Channels Adoption of Improved Technologies.

There was a significant relationship between availability, accessibility and use of channels and respondents' adoption of improved agricultural technologies (Table 4).

Table 6: Relationship between availability, accessibility and use of mass media and adoption of improved technologies in Edo state.

Channels	coefficient	t-statistics
Availability	0.208	2.766*
Accessibility	0.245	2.508*
Use	0.275	3.220*

Source: Field survey,2013

Conclusion and Recommendations.

There is positive relationship between Information communication technology (ICT) and adoption of improved cassava technologies in Edo state.

There is need to energize and invigorate the availability of mass media channels in Edo state ADP. Extension delivery agencies like Edo State ADP should be implored to "prop" up the use of the channels by funding the logistics involved in their availability and accessibility. Extension should conduct radio and television broadcast between 7.00pm-8.00pm for a duration of 30-60 minutes. Mass media channels used in Edo state ADP such as EBS television, Nigerian Observer Newspaper and Extension guide/leaflets should be adequately funded.

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