Effects of Information and Communication Technologies Channels on Rural Community dwellersin Ogbomoso North Local Government Area

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ABSTRACT

This study evaluated effects of information and communication technologies channels on rural community dwellers in Ogbomoso North Local Government Area. Multistage sampling technique was used to select the respondents. The first stage was simple random sampling of four (4) wards.The second stage was the random sampling of 20 registered farmers from each ward. A total number of 80 respondents constituted the sample size.Data will be analyzed using descriptive statistics and Product Pearson Correlation (PPMC) model.

The mean age of the farmers was 45.3 years. The farmers' utilized ICTs which were radio (48.7%), television (20%), mobile phone (15%), radio and television (10%) and print media (6.3%).Age, years spent in school, years of experience, income and duration of extension visit were positive and statistically significant at 5 percentage levels.

It was concluded that, the rural dwellers are well informed on the use of current ICTs. Radio was most available in the study area. There is also the availability of mobile phone in the study area. Most of the respondents used radio.An increase in age, years spent in school, years of experience, income and duration of extension visit has the likelihood to increase the usage of ICTs. It was recommended that young and educated individuals should be encouraged to

participate in farming. Married individuals should not force their children to be engaged as family farming-laborers'. More sensitization on the awareness of modern ICTs should be disseminated to farmers. Government should give mobile phone network providers, electricity companies and television station incentives that will lure them to establish more investment in the rural areas in other to improve utilization of ICTs among farmers in the rural areas. Farmers should be encouraged to diversify their investment in other to reduce the risk of total loss in a particular sub-sector.

Keywords: Bad Signal, Erratic Power Supply, Radio, Television and Print Media.

INTRODUCTION

Today's world is widely information-driven where Information and Communication Technologies (ICT) are increasingly becoming the underlying drivers of social and economic development including agriculture, not only in developed countries but across the globe (Ajani, 2014; Irungu, *et al*. 2015; Gayi and Tsowou, 2016, Francis, 2016, Sennuga, 2020). Over the last two decades, Sub-Saharan Africa has witnessed a significant explosion in the use of ICT (Conger 2015). However, Chikaire, *et al.* (2017) singled out some constraining factors affecting the utilization of ICT including: a lack of awareness; an underdeveloped legal framework for information sharing; infrastructure problems; poor connectivity to a global network; maintenance problems; weak research and development; and high taxes. Many African citizens and people in various industry sectors now own personal ICT devices such as computers, tablets and mobile phones among others.

This trend also includes smallholder farmers using ICT (mainly mobile phones capable of SMS texting) for a variety of uses from personal communications to market intelligence. Indeed, in Sub-Saharan Africa, the mobile telecommunication Global System for Mobile communication (GSM), is recognized as experiencing the largest increase in usage among all the ICT of any continent with some unique and innovative uses being found (Irungu*et al*. 2015).

In rural Nigeria, prior to 2000, ICT use was primarily limited to radio, television and landline

telephones. It is important to note that the modern ICT were introduced into Nigeria in 2001 on the instructions of the office of President OlusegunObasanjo as the new democratically elected president. From the year 2001 however, Nigeria opted for full sector reform and backed this up with a telecom policy. The draft of this National Telecom Policy (NTP) was approved by the Federal Executive Council and released in September 2000, the hallmark of which was a blueprint for full liberalization of the telecoms industry. Ever since then, there has been tremendous progress in the telecommunication industry, economy and (to a lesser extent) the agricultural sector of the country (Dulle, 2012; Sennuga, 2020).

According to Sepideh (2014) ICTs are the combination of hardwares, softwares, and the means of production of information that enable the exchange, processing, and management of information and knowledge. Information and communication technologies thus include technologies and methods for storing, managing, and processing information (e.g., computers, soft wares, digital and non-digital libraries) and for communicating information such as mail and email, radio and television, telephones, cell phones, pagers, instant messaging and "the web".However, in everyday speech, ICTs commonly refer to electronic and digital devices and the software used for storing, retrieving, and communicating information (Raghuprasad, 2012).

The importance of ICT is not the technology as such, but it'senabling function in access to knowledge, information andcommunications, which are important elements in today's economic andsocial interactions. ICT, particularly the internet are transforming allhuman activities dependent on information, including rural developmentand in other areas. Internet is cost effective, powerful, decentralized andit is in the hands of civil society who can share knowledge and produceinformation(Raghuprasad, 2012).Radio as an example of ICT is the most popular mass medium in Nigeria (Familusi and Owoeye, 2014) broadcasts in different languages. It offers a forum where different voices can be heard. Radio does not face distribution challenges like newspapers and the cost of television, which is quite high therefore making it affordable to

only a few households. Regional radio is any radio station that broadcasts in a specific geographical area and set up to serve a particular locality (Oyeyinka*et al.*, 2014). The station may broadcast either in a country's national languages or the local language depending with the target audience.

According to Ajayi*et al.* (2013), ICTs can offer opportunities for two-way and horizontal communication and for opening up new communication channels for rural communities and the intermediaries and development organizations that support them. Once mastered, they potentially allow every user to be a sender, receiver, 'narrowcaster' and broadcaster; support bottom-up articulation of development needs and perceptions, and facilitate the merging of global and local knowledge and information, support, create and strengthen interactive and collaborative networks that enable information to flow to and from rural communities; facilitate dialogue between communities, intermediaries and development organizations; foster coordination of national and local development efforts; and overcome physical barriers to knowledge and information sharing. ICTs can also enhance the capacity of grassroots organizations to make their voices heard. ICTs improve the ability to search for information and increase the quantity of information available, ultimately reducing uncertainty and enhancing market participation. Answers to question such as "how do buyers and sellers find each other and what price can be achieved?" and "is it better to store the produce or sell it immediately?" can be easily achieved through the use of ICTs (Kalema, 2017). ICTs also present new opportunities for individuals and communities to be not only consumers but also producers of information.

Studies have shown that agricultural development in Nigeria and other African countries have been hampered by low level of agricultural information exchange. Ufiobor (2017) reported that in Nigeria, the national extension service is based on the T&V delivery system, traditionally

supported by mobile cinema, video, television, radio and telephone being the only ICT used by majority of extension workers. However telephone use in extension delivery even with the launch and explosion of the global system of mobile communication (GSM) is very limited as most ADPS even at the head offices does not have functional lines (Adejo*et al.*, 2012). The serious limitation of access to reliable telephone line makes even ordinary intra and inter organization networking for information exchange a harrowing and frustrating experience (Adejo*et al.*, 2012). The vision of the public agricultural extension system in Nigeria is that there should be a media sub-unit within agricultural sub programmes equipped with modern communication facilities for effective communication both within the organization and to link research institutes, related agencies and farmers (Amani*et al*., 2011).

Despite the fact that the world is going through an information technology revolution that has drastically changed many facets of human life, from politics, education, and entertainment to industry (Tata and McNamara, 2015). However, Abdulateef*et al.* (2017) pointed out that Nigeria's economy is rural-based, with over 70% of the population deriving their means of livelihood from agriculture either directly or indirectly and further stated that these rural areas are still starved of most modern facilities such as potable water, electricity, good roads, educational facilities, modern health facilities, storage facilities and communication facilities.

The specific objectives were to;

1. examine the socio-economic characteristics of respondents in the study area.
2. ascertain the information and communication technologies channels used in the study area.
3. determine the constraints of information communication technology to farmersin the study area.

Hypothesis of the study

H_{01}: There is no significant relationship between information and communication technologies channels and farmers characteristics in the study area.

METHODOLOGY

Study area

The study was conducted in Ogbomoso North Local Government Area of Oyo State. It is lies approximately on latitude 80^0N of the equator and longitude 4^0E of the Greenwich meridian. It as population of about 198, 559 (NPC, 2006). The population is projected to be 225, 559 by 2017 with the population growth rate of 3.2%. The headquarters are in the town of Kinnira. The land area is 207978 km^2. It is bounded by Ogbomoso South, Oriire and Surulere Local Government Areas. The mean monthly temperature is approximately 28^0C. Ogbomoso North Local Government Area is in derived savanna climatic zone where agricultural products such as yam, melon, cashew, mango, shea-butter, cocoa, kola nut, palm-oil etc can be found.

Multistage sampling technique was used to select the respondents. The first stage was simple random sampling of four (4) wards.The second stage was the random sampling of 20 registered farmers from each ward. A total number of 80 respondents constituted the sample size.

Variables that were used in analyzing objective one are; age, sex, income, education, etc. Variables that were used in analyzing objective two are status of; radio, television, newspapers, internet, etc. The status were measure with dummy option, where Yes = 1 (use), No = 0 (not use). Variables that were used in analyzing objective three involves use of electricity, it not easy

to understand by stack illiterate, inadequate access, low technical know-how, etc. The constraints had several option which includes; SA -Strongly agreed, A-Agreed, D-Disagreed, SD-Strongly and U-Undecided

The dependent variables that were used in analyzing the nullhypothesisinformation communication technology index: while the independent variables are socio-economic characteristics (age, household size, income).

Descriptive statistics such as frequencies counts, percentage and mean table were used to measure the socio economic characteristics of the farmers (such as gender, age, marital status e.t.c), usage of information communication technologies, and constraints of information communication technology to farmers. Product Pearson Correlation (PPMC) model was used in the testing of hypothesis.

RESULTS AND DISCUSSION

Socio economic characteristics of respondents

Socio economics characteristics of household respondents are presented in Table 1 below.

Age: The farmers which were less than 40 years of age were 31.3%.Thus, a good number of the respondents were in their youthful age. The respondents that were within ages 40 to 44 years and 45 to 49 years were 20% and 8.7% respectively. Also, the respondents that were greater than 50 years of age were 40%. Therefore, the aged respondents were less than the younger ones.

Moreover, the mean age of the farmers was 45.3 years. This was an indication that the farmers were in their productive years.

Educational level: The respondents educational level were secondary (20%) and tertiary (80%).Thus, the highly educated respondents were greater than the less educated ones. Furthermore, most (64%) of the respondents had attended tertiary institution. This was an indication that the respondents were highly educated. This finding was not consistent with the findings of Ayoade and Adeola (2012) who reported that the 5.8% of farmers in Oriire Local Government Area attended tertiary institution.Education is needed by an individual to be able to adopt modern ICTs on farming which could increase farmers' productivity.

Annual Income: The farmers' whose annual income were less than ₦500,000 were 23.8%.Thus, some of the respondents were low income earners. The respondents whose annual income were within ₦500,000 to ₦ 999, 000 and ₦1 million to ₦1.5 million were 36.20% and 15% respectively. Moreover, the respondents whose annual income were greater than ₦1.5 million were 25%. Therefore, the respondents were high income earners..The mean annual income was ₦ 1, 716, 126. This amount indicated that the respondents were high income earners. Therefore, the practice of improve farming could have improve the income of the farmers.

Table 1: Socio-economic characteristics of the respondents

Characteristics	Frequency	Percentage
Age (years)		
<40	25	31.3
40−44	16	20
45−49	7	8.7

>50	32	40
Total	80	100.00
Mean = 45.3		
Educational level		
Secondary	16	20.00
Tertiary	64	80.00
Annual Income (₦)		
<500,000	19	23.8
500,000−999,000	29	36.20
1m−1.5m	12	15.00
>1.5	20	25.00
Mean = 1, 716, 126		

Source: Field Survey, 2018.

Information and communication technologies channels of the respondents

Information and Communication Technologies (ICTs) channels of the respondents were shown in table 2. This section entails ICTs awareness, availability and utilization.

Aware: The farmers' awareness of ICTs on radio (47.5%), radio and television (10%), television (22.5%), internet (15%) and mobile phone (5%) were stated. Most of the respondents were aware of the use of radio. This was probably because radio are portable, easy to use, cheap to maintain and mostly been broadcast in local and national languages. Moreover, the respondents are also aware of the use of television, internet and mobile phone. The awareness of the use of internet was an indication that the rural dwellers are well informed on the use of current ICTs. The findings of this study was not in line with the findings of Ajayi*et al.* (2013) who reported that the farmers awareness on internet was 83% in Ondo State.

Available: The available ICTs in the study area were radio (42.5%), radio and television (17.5%) and mobile phone (40%). The results show that radio was most available in the study area. This finding agreed with the findings of Olaniyi (2013) who reported that radio was most available among ICTs in Afijio Local Government Area of Oyo State. Television and mobile phone were also available in the study area. An appreciable number of the respondents stated that radio and mobile phone were available. This result shows that mobile phone network services were available in the remote and rural settings of Nigeria. The availability of mobile phone in the study area was an indication that the farmers in the area can be personally and easily be contacted by agents of agricultural intervention programs which is to improve productivity and standard of living of farmers.

Utilize: The farmers' utilized ICTs which were radio (48.7%), television (20%), mobile phone (15%), radio and television (10%) and print media (6.3%). Most of the respondents used radio. This was probably because farmers' friendly program are been aired on radio. This finding affirmed the result of Olaniyi (2013) who reported that utilization ofradio was most prominent among ICTs in Afijio Local Government Area of Oyo State. Moreover, the respondents used television, mobile phone and print media. The use of print media may be desirable because it has pictorial diagram which can bring visual explanation to the farmers.

Table 2: Information and communication technologies channels of the respondents

Characteristics	Frequency	Percentage
Aware		
Radio	38	47.50
Radio and Television	8	10.00
Television	18	22.50
Internet	12	15.00
Mobile Phone	4	5.00
Total	80	100.00
Available		
Radio	34	42.50
Radio and Television	14	17.50
Mobile Phone	32	40.00
Total	80	100.00
Utilize		
Radio	39	48.70
Television	16	20.00

Mobile Phone	12	15.00
Radio and Television	8	10.00
Print Media	5	6.30
Total	80	100.00

Source: Field Survey, 2018.

Constraints of information and communication technologies channels of the respondents

In table 3, the constraints of Information and Communication Technologies (ICTs) channels were erratic power supply (40%), expensiveness (17.5%), bad signal (12.5%) among others. The main constraints of ICTs was erratic power supply. Erratic power supply could discourage the use of up-to-date ICTs such as the internet, computer, print media to mention a few. This is because these ICTs requires the use of electric current to power them. The findings of Ajijola*et al.*(2015) was in line with the result of this study. They reported that the main constraints of ICTs was erratic power supply in Afijio Local Government Area. An appreciable number of respondents stated that Information and Communication Technologies (ICTs) were expensive. This shows that individuals who desire to adopt ICTs may not be able to do so because of their low purchasing power. Bad signal was also an impediment to the use of ICTs in the study. Bad signal could inhibit utilization of radio, television and internet among others.

Table 3: Constraints of information and communication technologies of the respondents

Characteristics	**Frequency**	**Percentage**
Erratic Power Supply	32	40.00
Expensiveness	14	17.50
Time Wasting	3	3.80
Outdated Information	2	2.50

Bad Signal	10	12.50
Poor Accessibility	5	6.20
Others	14	17.50
Total	80	100.00

Source: Field survey, 2018.

Test of Hypotheses

Thenull hypothesis stated that, there was no significant relationship between utilization of information and communication technologies channels and farmers characteristics in the study area. In table 4, the age, years spent in school, years of experience, income and duration of extension visit were positive and statistically significant at 5 percentage levels.This was an indication that an increase in age, years spent in school, years of experience, income and duration of extension visit has the likelihood to increase the usage of ICTs. Therefore, the null hypothesis was rejected. Moreover, the findings of Ajijola*et al.*(2015) was in line with the result of this study. They reported that utilization of information and communication technologies had a positive and statistically significant at 5 percentage levelwith age of farmer in Afijio Local Government Area.

Table 4: Analysis of relationship between socio-economic characteristics of respondents and utilization information communication technologies channels

Variables	Correlation Coefficient	Decision
Age	*0.289	S
Years Spent in School	*0.458	S
Years of Experience	*0.531	S
Income (₦)	*0.344	S
Duration of Visit	*0.332	S

* 5% level of significance

S = Significant

Source: Field survey, 2018.

Conclusions and Recommendation

It was concluded that, farmers were in their productive years. The respondents were highly educated and high income earners. The rural dwellers are well informed on the use of current ICTs. Radio was most available in the study area. There is also the availability of mobile phone in the study area. Most of the respondents used radio. The main constraints of ICTs was poor power supply. An increase in age, years spent in school, years of experience, income and duration of extension visit has the likelihood to increase the usage of ICTs.

It was recommended that young and educated individuals should be encouraged to participate in farming. Married individuals should not force their children to be engaged as family farming-labourers. More sensitization on the awareness of modern ICTs should be disseminated to farmers. Government should give mobile phone network providers, electricity companies and television station incentives that will lure them to establish more investment in the rural areas in other to improve utilization of ICTs among farmers in the rural areas. Farmers should be encouraged to diversify their investment in other to reduce the risk of total loss in a particular sub-sector.

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