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Information and Communication Technology (ICT) as Tool by Agricultural Extension Agents in Osun State, Nigeria

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Abstract

This study assessed the factors influencing utilization of information communication technology (ICT) in agricultural extension service delivery in Osun state. A total of 175 respondents were considered (extension agents = 155, supervisors = 20). The data were analyzed using descriptive statistics (frequency and percentage). The result from the research revealed that majority (80% and 90%) of respondents were male and are married respectively, while 87% are within the age range of 30 – 49 years. The family

size of majority of the extension workers are within 4 – 6 members. While 61.7% of the respondents had B.sc/B.A, a handful (23.4%) had HND with few (14.9%) ND certificate holders. Their annual salaries range from N300,000 - N600,000 and majority (85%) of the extension workers do not belong to any agricultural association. Radio and Television (100%) were the ICTs most aware of among the extension workers followed by telephone (98.9%).

Keywords: ICT, Agricultural Extension, Nigeria

Introduction

The role of information as a developmental tool and resource for nation's building cannot be overemphasized (Taofeeq and Lukman, 2014). Recently, information communication technology (ICT) has gained greater recognition due to its increasing importance for developmental efforts and its ability to solve problems through its influence on other production resources to achieve developmental goals even in the Agricultural sector (Abumere and Soyibo, 2001; Myer, 2005) ^[1,9].

In the absence of ICT facilities in the mainstream of Nigerian agriculture system, there is a great possibility of stagnation in the dissemination, utilization and application of scientific agriculture information for purposeful development of the system (Adebayo and Adesope, 2007) ^[2]. Also, government extension agencies are often bureaucratic and the services they provide may not have the capacity to reach all small-holder farmers nor provide up-to-date and tailored information to meet the needs of the farmers (Bell, 2015) ^[4]. It is also observed that one of the biggest challenges facing developing nations which need to be addressed urgently is the use of agricultural technology, innovations and other research findings do not get to farmers who need it most. A promising solution for these shortcomings may be found in the increasing prevalence utilization of ICT in developing and emerging economies. The agricultural sector has taken the advantage of this development and there are hopes that ICT can fill the void that public extension is unable to address, as farms are often resource poor and there are no enough extension workers to reach all smallholder farmers (Bell, 2015) ^[4].

Another researcher, Meera *et al.*, (2004) ^[8] noted that as a result of the emerging new paradigm of agriculture development, old ways of delivering important services to citizens are being challenged and that traditional societies are also being transformed into knowledge societies. ICT as an extension tool would enhance information flow in the application of agricultural extension services (Adebayo and Adesope, 2007) ^[2]. There is therefore the need to describe the socio-economic characteristics of extension agents in order to determine the level of knowledge/awareness and skills possessed by extension agents on extension teachings using ICT.

Materials and Methods

Multi-stage sampling techniques were used to select respondents while questionnaires were administered to gather data for the study. The first stage involved the purposive selection of all the three senatorial districts in the state (Osun West, Osun Central and Osun East). The second stage involved the random selection of 50% of the six administrative zones, two each from the senatorial districts (Iwo and Ede, Osogbo and Ikirun, Ife and Ilesha). At the third stage, purposive selection of all the extension agents (45, 50 and 60 in Iwo, Osogbo and Ife/Ijesa respectively and supervisors (6, 6 and 8 in Iwo, Osogbo and Ife/Ijesa) in the selected zone was done giving a total number of 155 extension agents and 20 supervisors. This gave a sample size of 175 respondents.

Results and Discussion

Socio-Economic Characteristics of the Extension Agents

From Table 1, the ages of the respondent show that most (46.9%) of the respondents are within 41-50 years, followed by 41% who are within the range of 21-40 years. It further shows that over 87% of the respondents are young and in their active age and should be able to appreciate the use of ICT. This is supported by Muhammad *et al.*, (2019) [10] which stated that the young age group was more inclined towards information collection/sharing by the use of ICTs. Also, the sex distribution shows that most (80%) are male while female constitutes only 19.4% which indicates that extension agent work were predominantly dominated by males which may not be unconnected with gender disparity found in the public service in Nigeria (Yakubu *et al.*, 2013). This further indicates that technology development and transfer will be gender biased as observed by (Salau and Saingbe, 2008) [11].

Table 1: Socio-economic characteristics of Respondents

Variables	Frequency	Percentage
Age (Years)		
21 - 30	35	20.0
31 - 40	37	21.1
41 - 50	82	46.9
51 - 60	21	12
Total	175	100
Gender (Sex)		
Male	141	81
Female	34	19.5
Total	175	100
Marital Status		
Married	158	90.3
Single	17	9.7
Total	175	100
Family Size		
1 - 5	26	14.9
6 - 10	149	85.1
Total	175	100
Educational Level		
ND	26	14.9
HND	41	23.4
B.Sc. / B.A	108	61.7
Total	175	100
Annual Income		
Up to N300,000	66	37.7
N301,000 – N400,000	65	37.1
N401,000 – N500,000	16	9.1
N501,000 – N600,000	28	16.0
Total	175	100

Source: Field Survey, 2019

Marital status as revealed in Table 1 shows that most (90.3%) of the respondents are married while very few (9.7%) are single. From the Table also, most (85.1%) of the respondents have 1-5 family size while few 4.6% have 6-10 family size. This means that majority of the respondents have family responsibility although the family size is not as large as found in other researches, such as that of Yakubu *et al.*, (2013) in which over 53% of the respondents have between 5 and 14 children. The family responsibility might negatively affect their ability to own or use ICT services. Table 1 revealed further that most (61.7%) had B.Sc./B.A, 23% are HND holders with 14.9% having ND certificate. This shows that all the respondents have western education. Education is a prerequisite for the use of ICT (Yaghoobi and Chizari, 2005; Zhang, 2005; Baliram, 2009) [13, 14, 5] and they should appreciate its use.

Most (37.7%) of the respondents receives up to N300,000 annually, followed by another set 33.7% who receives between N301,000 – N400,000 as their remuneration annually. The salary is too meager with the present situations of the country. It can be said unequivocally, that the extension agents are among low level income earners in the country. As a result of this, it may be very difficult for an extension agent to own or support themselves with any ICT device (Salau and Saingbe, 2008 [11]; Chaudhry *et al.*, 2012 [6]; Arokoyo, 2005 [3] in Yakubu *et al.*, 2013).

Level of knowledge/awareness of ICT by extension agent in extension teaching

The levels of knowledge/awareness of ICT by respondents are presented in Table 2. The knowledge possessed was measured by asking the respondents about their awareness of the selected ICT tools. It is a known fact that knowledge/awareness precedes utilization and the degree of the knowledge about the device leads to its usage.

Table 2: Knowledge/awareness of ICT by Extension

Variables	Frequency	Percentage (%)
Radio	175	100
Television	175	100
Telephone	173	98.9
Camera	79	45.1
Video	100	57.1
E-mail	88	50.3
Computer	112	64

Source: Field survey, 2019

Table 2 shows that all (100%) the respondents were aware of radio and TV set and majority (98%) were aware of telephone while 64% were aware/have knowledge of computer, 57% knows about video and another 50% have knowledge about e-mail and the least in awareness among the device is camera in which only 45% of the respondent have its knowledge. This result is a confirmation of earlier research by Fadiji (2011) [7] where he reported 99%, 93% and 98% awareness of radio, TV set and telephone respectively by the extension agents. Although the result of this research is at variance with Yakubu *et al.*, (2013) as he reported 98% awareness each for camera, video and 96% for computer respectively. The disparity could be as a result of differences in zone/state of the research as well as level of performance in terms of activities of the extension agent in the affected areas.

Conclusions

ICTs have great potential in improving agricultural extension service delivery in Osun state. Among the socio-economic characteristics of the extension agents, family size, educational level, training on ICT and knowledge (awareness) of ICT have positive and significant influence in utilization of ICT while year of working experience, age and annual income played important role in influencing utilization of ICT, although positively but statistically insignificant.

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