

Assessment of Information and Communication Technology Usage Among Agricultural Undergraduates in Osun State University, Nigeria

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Abstract

The importance of Information and Communication Technologies (ICTs) can never be overemphasised. This study, therefore, assessed the use of ICTs among undergraduates of the College of Agriculture, Osun State University, Nigeria. The paper identified constraints associated with the use of ICTs among the students. A validated structured questionnaire was used to collect primary data from 130 final year students in the College. The data collected were analyzed using descriptive and inferential statistics such as frequency, pie-chart, mean, standard deviation and multiple regression analysis. Findings showed that 20.8 per cent and 64.6 per cent of the respondents were at the low and medium levels of ICT usage, respectively. At least 3 in 5 respondents (62.3%) had internet usage experience ranging from 6 to 10 years. The most utilised ICT channels were mobile phones (96.9%) and the internet (88.5%), while the least utilised channels were audiovisuals (26.0%), portable devices (12.3%), agriculture bulletin (11.7%) and University e-library (11.5%). The high cost of acquiring ICT gadgets/equipment (98.8%), slow speed of internet connectivity (93.8%), irregular power supply (90.8%), inadequate ICT infrastructure (90.8%), lack of access to e-library services (86.8%) and high cost of the internet surfing (75.6%) were identified as the major constraints to the use of ICT. Age and gender of the respondents were not significantly related to the use of ICTs. The study concluded that ICTs use was mostly at the medium level and constraints facing the students were many. It is, therefore, recommended that the College ICT centre and e-library should be appropriately equipped with ICT infrastructure and facilities to enable students to have access to a wide range of information on agriculture and ICTs based agricultural services.

Keywords: Agriculture, Assessment, ICTs, Undergraduates

INTRODUCTION

Information and Communication Technologies (ICTs) have turned the entire world into a global village. In this era of information revolution, it has become nearly impossible for any individual to function in any aspects of life without the use of technology (Jaminet *al.*, 2019). ICTs have become indispensable in our everyday life. Yet, there is no consensus among scholars concerning the definition of the term Information, communication and technology (ICT) (Zuppo, 2012). Hence, the term has variously been defined, depending on context and applications (Camelo *et al.*, 2018). For

example, UNESCO (2002) as cited in Bhattacharjee and Deb (2016), described ICT as scientific, technological and engineering disciplines and the management technologies used in the handling of information, processing, and application related to computers. ICT includes any device, tool, or application that permits the exchange or collection of data through interaction or transmission. ICT has also been described as an umbrella covering anything ranging from radio to satellite imagery to mobile phones or electronic money transfers (Sawant *et al.*, 2016). ICTs are technologies which facilitate communication and thus the processing

and transmission of information electronically (Ogirima *et al.*, 2019). In a more recent study, Marongweet *al.*, (2019) defined information and communication technologies (ICT) as a wide variety of tools that are technological in nature as well as devices and gadgets which are used in communicating, creating and storing data and information. These gadgets and tools include the internet, computers, television, telephones including cellphones, audio and, video devices, projectors.

The use of ICTs has made possible access to almost all types of information or data needed by students. It has also created an enabling environment for effective learning and teaching makes learning more enjoyable. The use of ICT saves time and reduces stress in searching for information and thereby serves as a motivation to all categories of research. Research attention in the past decades has focused on the adoption of ICTs enabled information systems in almost every sector of the economy and field of studies (Agunbiade, *et al.*, 2017; Uziakiet *al.*, 2018).

The connection between ICT usage and agriculture and rural development is very important (Hidroboet *al.*, 2017; Adetunjiet *al.*, 2017, Wankhadeet *al.*, 2017, Katunyoet *al.*, 2018, Katunyo, 2019), particularly in Nigerian and similar contexts. Agriculture is the mainstay of Nigeria's economy. Young people in the country are being encouraged, through various interventions, to uptake careers in agriculture (Omotoshoet *al.*, 2020, Agbarakwe, and Anowor, 2018, Malabe *et al.*, 2019). For the successful retention of young people in Nigeria's agricultural sector, current students in the field of agriculture must take advantage of

opportunities that ICT offers in accessing agricultural information. Generally, youths are very keen on the use of social media and the internet. There have been some studies on the use of ICT among the youths and students in tertiary institutions (Bankole and Babalola, 2013; Adepoju 2016; Agunbiadeet *al.*, 2017). However, evidence in research is scarce on the use and barriers to the use of ICT for agricultural information in Nigerian Tertiary Institutions where students are expected to build a career in Agriculture. According to Gagnon and Krovi (2000), undergraduates mostly used the internet to gather information online, retrieved articles, to read and download information but the constraints to the use of information and communication technology are unstable power supply, lack of internet connection on campuses, slow Internet connection, interrupted internet services, high cost of internet charges, inadequate ICT infrastructure, and poor access to ICT facilities in the various campus.

Few studies on the ICT in agriculture were directed at farmers and teachers of agriculture (Adetunjiet *al.*, 2017; Alabi, 2016) and not among students taking a career in Agriculture. Hence, this study main objective was to assess the use of Information and Communication Technology (ICT) by undergraduates of agriculture at Osun State University, College of Agriculture The specific objectives were to describe the socio-economic characteristics of the respondents and their background to the use of the internet; determine the level of use of ICT by the respondents; identify the constraints associated with its use and determinants of ICT use by the respondents.

METHODOLOGY

The study involved all final year students of the College of Agriculture of Osun State University, Ejigbo Campus. The study design was cross-sectional and primary data were collected through the use of a structured questionnaire from the four Departments in the College. All the 130 final year agricultural students in the College were selected for the study. This comprises 16 final year students in Animal Science; 50 in Agricultural Economics and Extension; 26 in Agronomy and 38 in the Department of Fisheries and Wildlife Management. Data were collected from the 130 final year students. The data collected were analysed using descriptive statistics such as frequency tabulation, mean, standard deviation and percentages to describe the socio-economic characteristics of the respondents and pie chart to present the overall level of ICT usage. Multiple regression analysis was used to examine the effects of selected socio-economic variables on the use of ICT.

RESULTS AND DISCUSSION

Results in Table 1 showed that 63.8 per cent of the respondents were below 25 years and 36.2 per cent were aged 25 years or more. The mean and the standard deviation of the age variable were 23.6 and 2.5, respectively. This result indicated that majority of the respondents were younger youths and as such may express

Frequency of use of ICT channels

Table 2 shows the percentage distribution of respondents according to the frequency of use of various ICT channels. Results showed that the mobile phone was the most utilised of all the 10 channels listed with a weighted mean score (WMS) of 2.96. Bankole and Babalola (2013) had earlier reported in a study that mobile phone was the most used ICT tool that is language and literacy independent.

some youthful characteristics such as agility, innovation proneness, the faster rate of learning new things and love for adventures. The study corroborates that of Gagnon and Krovi (2000) and Jagboro (2003) that undergraduates mostly used the internet. Equal proportions of the respondents (50.0%) were male and female. Data on marital status show that nearly all (97.7%) the respondents were single, only a few (2.3%) of the respondents were married.

The majority (80.6%) of the respondents were Christians while 19.4 per cent were Muslims. This indicates that education is well embraced by the two prevalent religions in the study area.

Results on the internet surfing experience showed that at least 3 in 5 respondents (62.3%) had been using the internet for several years, specifically between 6 and 10 years. These findings support that of Bankole and Babalola (2012) that some of the students (34.8%) had between 5 and 6 years of internet user experience. This implies that the bulk of the respondents have been familiar with the use of the internet before they gained admission into the university. Results also indicated that knowledge of the internet by many of the students (45.9%) was achieved by their personal efforts and by training (23.9%).

Mobile phone offers many opportunities such as enhancing time management, ease the flow of communication without barriers to distance and also means of accessing the internet. Next to the mobile phone is the internet with a weighted mean score of 2.88 as the second most utilised ICT channel by the respondents. Previous studies such as Rohila *et al.*, (2017) and Agunbiade *et al.*, (2017) on the use of the internet by undergraduates in a Nigerian University acknowledged the

high use of internet among their respondents is mostly used. Television ranked the third most-used channel with a weighted mean score of 2.41. Laptop and radio were ranked as the fourth and the fifth most utilised channels with weighted mean scores of 2.33 and 2.16, respectively. The three least utilised ICT channels were agricultural bulletin (1.67), portable devices (1.66) and the University e-library (1.62).

Level of ICT Usage

Figure 1 showed the overall level of ICT usage among the respondents in the study area. This showed that few (20.8%) of the respondents were at the low level of ICT usage, the majority (64.6%) were at a moderate level of ICT usage, while only 14.6 per cent of the respondents were at the high level of ICT usage. This implies that majority of the respondents had a medium level of ICT use. This finding corroborates that of Meenambigai *et al.*, (2017) in a study of attitude, knowledge and extent of utilisation of ICT tools among the staff and students of Faculty of Agriculture, Annamalai University, India where the level of use ICT tools was reported to be at the medium.

Constraints to ICT Usage by Undergraduates

Results in Table 3 displayed the constraints facing the students' in accessing ICT. The respondents listed high cost of acquiring ICT equipment (98.8%); the slow speed of internet connectivity (93.8%); poor access to ICT facilities in the College library (90.8%) and irregular power supply (90.0%) as the greatest constraints to the use of ICT. These findings corroborate those of Alabi (2016); Rahmeta and Lemma (2019); Bankole and Babalola (2013); Almarabeet *al.*, (2016), Adisa *et al.*, (2018) and Oleleweet *al.*, (2020). While Alabi (2016) identified lack of access to appropriate ICTs equipment and irregular power supply as the major constraints to ICT use

by Agricultural Science Extension teachers in Abuja, Almarabeet *al.*, (2016) found the slow speed of internet as a constraint to ICT use in a study in the University of Jordan. Bankole and Babalola (2013) also reported slowness of the server speed as a major challenge facing Internet usage among Olabisi Onabanjo University students.

Determinants of the use of ICT by the respondents

Table 4 showed the results of the determinants of the use of ICT by the respondents using stepwise multiple regression analysis. The overall effect of independent variables on ICT use was significant ($p < 0.05$). There was an inverse relationship between age and ICT use suggesting that younger respondents were more likely to use ICT than the older ones. This relationship, however, is not statistically significant. Similarly, male students were more likely to use ICT than their female counterparts, but the relationship between gender and use of ICT was not significant. There was a positive and significant relationship between years respondents started learning about the internet and the use of ICT ($t = 2.96$, $p < 0.01$). Findings from other studies on factors influencing ICT use have also found that males were more likely to adopt ICT than females (Adetunji *et al.*, 2017; Adepoju, 2016). For instance, Adetunji *et al.*, (2017) found in a study among rural farm dwellers in Oyo State, Nigeria that 55% of the male respondents and 46.7% of the female respondents adopted various selected ICTs while Adepoju (2016) found in some selected Universities in Nigeria that the male gender utilised ICTs more than their female counterparts while students below age 20 used ICT more than those between ages 20 and 30 years.

Conclusion

The current study found that mobile phones and the internet were the most utilised ICT channels by undergraduates while the University E-library was the least utilised. Majority of the respondents were in the medium level of ICT usage. Age of respondents was negatively related to ICT use but not statistically significant while internet experience was positively related and significant. The high cost of acquiring ICT gadgets/ equipment, slow internet access speed, poor access to ICT facilities in the school library, irregular power supply and lack of access to E-library facilities and equipment in the

College were major constraints to the use of ICT. These findings suggest that efforts must be geared towards finding a lasting solution to the identified challenges militating against the use of ICT in the College of Agriculture, Osun State University, Osogbo. The school management should upgrade the ICT infrastructure at the College e-library and ICT Centre to improve internet access and speed. The regular power supply should also be put in place on the campus for students to encourage and boost their interests in access to more online information.

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Table 1: Distribution of the respondents by socioeconomic characteristics, years of internet usage and sources of internet knowledge (n=130)

Variables	Frequency	Percentage (%)
Age		
15-24	83	63.8
25 and above	47	36.2
Mean =23.58		
Std. Deviation=2.5		
Sex		
Male	65	50.0
Female	65	50.0
Marital status		
Single	127	97.7
Married	3	2.3

Religion		
Christians	105	80.8
Muslims	25	19.2

Years of Internet usage Experience		
1 – 5 years	27	20.8
6 – 10 years	81	62.3
11 years or more	22	16.9
Mean= 8.2		
Std deviation= 3.2		

Source of Internet knowledge		
Through parents	24	18.5
Personal efforts	59	45.9
Training enrolment	31	23.9
Through Friends	16	12.3

Source: Field Survey, 2019

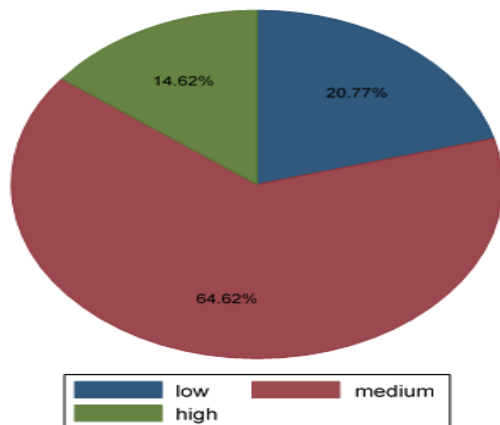


Fig1: Pie Chart of ICT usage level

Table 2: Frequency of use of ICT channels

ICT Channel	Always % (n)	Seldom % (n)	Never % (n)	WMS	Rank
Mobile phone	96.9 (126)	2.3 (3)	0.8 (1)	2.96	1
Internet	88.5 (115)	10.8 (14)	0.8 (1)	2.88	2
Television	47.7 (62)	45.4 (59)	6.9 (9)	2.41	3
Laptop	38.5 (50)	56.2 (73)	5.4 (7)	2.33	4
Radio	28.7 (37)	60.5 (78)	10.9 (14)	2.16	5
Audio visual media	26.0 (29)	51.2 (65)	22.8 (33)	1.92	6
Desktop computer	12.6 (16)	59.1 (75)	28.3 (36)	1.80	7
Agricultural bulletin	11.7 (15)	46.1 (59)	42.2 (54)	1.67	8
Portable devices	12.3 (16)	41.5 (54)	46.2 (60)	1.66	9
University e-library	11.5 (15)	39.2 (51)	49.2 (64)	1.62	10

Sources: Field Survey, 2019

Table 3: Distribution of respondents based on constraints to internet usage (n=130)

Constraints	Frequency	(%)	Rank
The high cost of acquiring ICT equipment	81	98.8	1 st
The slow speed of internet connectivity	122	93.8	2 nd
Poor access to ICT facilities in the library	118	90.8	3 rd
Irregular power supply	117	90.0	4 th
Inadequate ICT infrastructures	113	86.9	5 th
Lack of access to e-library facilities	112	86.2	6 th
Limited institutional internet facilities	102	78.5	7 th
Regular internet service interruption	99	76.2	8 th
The high cost of internet charges	98	75.6	9 th
Low internet bandwidth	96	73.8	10 th
Difficulty in locating relevant information on the internet	75	57.7	11 th

* Multiple responses situation

Source: Field Survey, 2019

	B	Std. Error	T	p-value
(Constant)	19.93	2.432	8.19	0.000

Table 4: Multiple regression analysis showing factors influencing ICT use

Age	-0.09	0.090	-0.95	0.344
Sex (0=female, 1 male)	-0.02	0.491	-0.74	0.971
Years started using the internet	0.23	0.077	2.96	0.004*

F(3, 115)=3.41; p<0.05; R²=0.08; Adj. R²=0.06 ; * Significant at 1%

Source: Field Survey, 2019