

Ownership and Utilization of Personal ICTS among Undergraduates of Agriculture in Federal University Gashua, Nigeria

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Abstract

The study investigated ownership and utilization of personal ICTs among agricultural undergraduates of Federal University Gashua, Yobe State. Primary data were collected with a structured questionnaire from 147 undergraduate students studying agriculture using simple random sampling procedure. The results showed that majority (85.0%) of the respondents were males with the mean age of 23.4 years. Most undergraduates owned mobile/camera phone (93.9%), internet/modem (60.5%), and had email addresses (79.6%) but the ownership of computer was low (42.2%). Slightly above average of the respondents (52.4%) had low utilization of ICTs and 51.7% had low ICTs skills respectively. There was a significant positive correlation between self-perceived ICT skills ($r = 0.574$, $p < 0.05$) and the utilization of ICTs. The study recommended that undergraduates studying agriculture should add computers to their ICT's kit and also undergo ICTs training to boost their ICTs skills.

Keywords: Personal ICTs, ICTs Ownership, ICTs Utilization, ICTs Skills, Undergraduates.

1.0 Introduction

Agriculture has entrenched itself in the economy of Nigeria given its role in food security, livelihood diversification and employment generation. Bolstering the prospects of agricultural transformation and economic diversification requires improvement in agricultural education and training in various universities. The use of Information and Communication Technologies (ICTs) by undergraduates of agriculture reflects the present reality where ICTs have found their uses in various sectors of national life including business, industry, governance, civil service, agriculture and education (Zyl, Alexander, Graaf, Mukherjee and Kumar, 2012; Yusuf, Afolabi and Loto 2013). ICTs include computers, telephone or smartphones, printers, scanners, tablets, internet and any devices used to access, create, store, edit, and distribute information (Frontiers Schools Partners in Learning, 2018). The use of ICTs in training agricultural undergraduates can support access to an exchange of knowledge (information) between teachers and learners and among learners (UNESCO, 2018). ICTs deepen classroom experiences by providing access to free and ever-increasing agricultural knowledge in various repositories in the world for cross-cultural exchange of ideas and innovations far more than can be done only in the classrooms.

At the farm level, ICT innovations have been developed to meet the needs of farmers for access to an exchange of information in order to boost agricultural production. Examples include M-PESA in Kenya and CropLife in Uganda supporting financial services and authentication of agro-inputs respectively (World Bank, 2011). This shows that ICTs are applied to solve farm-level problems hence; ICTs are important to undergraduates in the field of agricultural sciences. The use of ICTs in the training and education enhances knowledge and skill acquisition as well as prepare students for job effectiveness and efficiency thereafter. University undergraduates could explore ICTs to fulfill their aspiration for self-improvement beyond formal educational system which according to Fadipe, Amolegbe and Afun (2013) is mainly theoretical and devoid of real-life practical situations. Accordingly, experts opined that proper use of ICTs will enhance teaching and learning, acquisition of theoretical and practical knowledge in agriculture, attract graduates to agricultural employment, boost job opportunities and advancement in professional careers (Shrestha, 2009; Yusuf *et al.*, 2013; Ekerete and Ekanem, 2015; Kehinde and Agwu, 2015).

While the advantages of ICTs to learning may be noble, challenges such as inadequate power supply, lack of fund for procurement, inadequate ICTs provision and poor management of available ICTs may

hinder ICTs literacy among Nigerian universities undergraduates (Adetimirin, 2012, Oboegbulem and Godwin, 2013). It can then be deduced therefore that inadequate ICTs and supportive infrastructure in Nigerian universities could hinder undergraduates from maximally using ICTs to broaden learning.

Following the inadequacy of the Nigerian government to provide ICTs to the universities, the possessions of ICTs by the undergraduates for private, flexible and individualized studies have become inevitable. Personal ICTs refer to the devices that are owned by individuals. According to Zyl *et al.* (2012), personal ICTs such as mobile phones or tablets are becoming more widely available. Personal ICTs make learning flexible, regardless of time and geographical barriers. Therefore, this study was conducted to examine the ownership and utilization of personal ICTs at Federal University Gashua, Yobe State. The specific objectives are: (1) to identify the socioeconomic characteristics of the undergraduates in the field of agriculture at the university; (2) to determine the ICTs owned by undergraduates; (3) to ascertain the extent of utilization of ICTs; (4) to ascertain purposes of using ICTs and; (5) to determine self-perceived ICT skills of the respondents. The following null hypotheses were tested in the study: (1) there is no significant relationship between ownership of personal ICTs and their utilization. (2) There is no significant relationship between self-perceived ICT skills and their utilization.

2.0 Methodology

The study was carried out at the Federal University Gashua, Yobe State Nigeria. The university was established in 2013 in Bade Local Government Area of Yobe State (Wikipedia, 2018). The literacy level of Yobe State is low compared with southern states in Nigeria. The rationale for the establishment of the university was to give unfettered access to education by communities in rural Yobe state. The university currently has three faculties, namely: Faculty of Science; Faculty of Arts, Management and Social Sciences and Faculty of Agriculture.

The population for the study consists of all 200 level and 300 level students of the Faculty of Agriculture

3.0 Results and Discussion

3.1 Personal characteristics of the respondents

The results in Table 1 reveal that most (85.0%) of the respondents were males. This implies that there were more male than female students in the Faculty of Agriculture of the Federal University, Gashua. This is likely to be the direct consequence of typical low enrollment of girl child in primary and secondary

schools in the northeastern region of Nigeria (The Nation, 2017). Table 1 further shows that majority (67.4%) of undergraduates fell within the age range of 21-25 years, while the mean age was 23.4 years. Also, most (86.4%) of the respondents were single and sponsored by their parents. This implies that undergraduates were free from social and who are currently registered and taking courses in agriculture at the Federal University Gashua. The Faculty of Agriculture comprises six departments; namely Departments of Agronomy, Animal Science, Forestry and Wildlife, Agricultural Economics and Extension, Fisheries and Aquaculture and Home Science and Management. A simple random sampling procedure was used to select the sample for the study. The list of registered undergraduates in all the six departments in the Faculty of Agriculture for 2017/2018 academic session was obtained. The total number of students on the list was two hundred and eight (208) comprising one hundred and forty three (143) students in 200 level and sixty five (65) students in 300 level. Seventy-five percent, representing 107 from 200 level and 49 from 300 level respectively, were selected using simple random technique. This gave a total of 156 respondents for the study. The study made use of primary data collected with the aid of a structured questionnaire. One hundred and forty seven copies of the questionnaire were returned and used for the study. The questionnaire elicited information on socioeconomic characteristics, ownership of personal ICTs, utilization of ICTs, purposes of utilization of ICTs and self-perceived ICT skills. Ownership of personal ICT was measured by asking the respondents to tick the ICTs that they owned. Use of ICT was measured by asking the respondents to indicate the extent of use on four-point Likert type scale of Regularly (4), Occasionally (3), Rarely (2), and Never (1). Purposes of utilization of ICTs were measured by asking the respondents to indicate the purposes through tick while self-perceived ICT skills was measured by asking the respondents to indicate the level of competence in carrying out ICT tasks on four-point Likert type scale of Very good (4), Good (3), Fair (2) and Poor (1). Data were analysed using both descriptive and inferential statistics. For objectives 1, 2, 3, 4 and 5, frequency counts, percentages and means were used while hypotheses 1 and 2 were tested using Chi-square and Pearson Product Moment Correlation.

schools in the northeastern region of Nigeria (The Nation, 2017). Table 1 further shows that majority (67.4%) of undergraduates fell within the age range of 21-25 years, while the mean age was 23.4 years. Also, most (86.4%) of the respondents were single and sponsored by their parents. This implies that undergraduates were free from social and

psychological worries of home care which could negatively impact their education. It also implies that the ownership of ICTs will depend largely on the readiness of their parents to procure ICTs for them. Furthermore, fairly large (61.9%) undergraduates did

not have ICTs training before gaining admission into the University. Also, about (66.7%) undergraduates were not undergoing any ICT training as of the time of conducting this study.

Table 1: Distribution of socioeconomic characteristics of respondents (n=147)

Variable	Frequency	%
Sex		
Male	125	85.0
Female	22	15.0
Age (years)		
16-20	24	16.3
21-25	99	67.4
26-30	18	12.2
31-35	03	2.1
36-40	03	2.1
Mean	23.4	
Marital status		
Single	127	86.4
Married	20	13.6
Sponsorship		
Parents	128	87.1
Guardians	7	4.8
Government scholarship	4	2.7
Self	8	5.4
Level of computer training before university admission		
Diploma	8	5.5
Certificate	48	32.7
No training	91	61.9
Currently undergoing ICT training		
Yes	49	33.3
No	98	66.7

Source: Field survey, 2018

3.2 Ownership of ICTs

The results in Table 2 reveal that most (93.9%, and 60.5%, undergraduates owned mobile/camera phone, and internet/modem respectively while 79.6% of them had email accounts. The implication is that ownership of these ICTs by undergraduates will help them to possess ICTs skills required for effective utilization. About 45% of them owned computers. A few (15.0%,

11.6%, 18.4%, 18.4% and 33.3%) had printers, scanner, I Pad/tablet, digital camera, and flash drive respectively. The high level of ownership of mobile/camera phone is likely to be as a result of multi-functionality of the device, hence, the low level of ownership of scanner, digital camera and flash drive as separate ICTs.

Table 2: Distribution of respondents' ownership of ICTs (n=147)

ICTs	Frequency	%
Mobile/Camera phone	138	93.9
Computer	62	42.2
Printer	22	15.0
Scanner	17	11.6
Ipad/Tablet	27	18.4
Digital camera	27	18.4
Flash drive	49	33.3
Internet/Modem	89	60.5
Personal email	117	79.6

Source: Field survey, 2018

3.3 Utilization of ICTs

The results in Table 3 reveal the most used ICTs by the respondents were mobile/camera phone (3.55), and personal email (3.06). The finding agrees with the finding of Zyl *et al.* (2012) that personal ICTs such as mobile phones or tablets are becoming more widely

available. This implies that few ICTs were utilized for seeking agricultural knowledge hence ICTs were underutilized by undergraduates of agriculture. This will determine how much agricultural knowledge they acquire and utilize for boosting agricultural productivity.

Table 3: Distribution of respondents' utilization of ICTs (n=147)

ICTs	Regularly Freq. (%)		Occasionally Freq. (%)		Rarely Freq. (%)		Never Freq. (%)		Mean	SD
Mobile/Camera phone	105	71.4	28	19.0	4	2.7	10	6.8	3.55*	0.85
Computer	35	23.8	35	23.8	16	10.9	61	41.5	2.30	1.24
Printer	13	8.8	21	14.3	15	10.2	98	66.7	1.65	1.02
Scanner	9	6.1	17	11.6	18	12.2	103	70.1	1.54	0.92
Ipad/Tablet	20	13.6	17	11.6	12	8.2	98	66.7	1.72	1.12
Digital camera	20	13.6	17	11.6	14	9.5	96	65.3	1.74	1.12
Flash drive	25	17.0	24	16.3	16	10.9	82	55.8	1.95	1.19
Internet/Modem	46	31.1	32	21.8	17	11.6	52	35.4	2.49	1.26
Personal email	70	47.6	41	27.9	11	7.5	25	17.0	3.06*	1.11

Source: Field survey, 2018 *Represents high utilisation (above 2.5)

Also on the level of utilization of ICTs, Table 4 reveals that slightly above half (52.4%) of the undergraduates had low utilization of ICTs. This finding agrees with the

finding of Ogwu *et al.*, (2010) who stated that the use of ICTs by fresh undergraduates of the University of Botswana was low.

Table 4: Level of utilization of ICTs

Utilization	Frequency	Percent
Low (9-20)	77	52.4
High (21-36)	70	47.6
Total	147	100.0
Mean 20.00.		

Source: Field survey, 2018

3.4 Purposes of utilization of ICTs

The results in Table 5 reveal that the purpose of using ICTs by 92.5% of the respondents was to chat with friends and relatives. Other purposes were to read news (85.7%), listen to music (84.4%), watch

entertainment videos (81.0%), send and receive emails (72.8%) and search for agricultural information (66.7%). However, 46.9% used ICTs to do assignments, 45.6% used ICTs to watch agricultural videos, 33.3% used ICTs to prepare power point

presentation, 17.7% used ICTs to analyze data and 24.5% used ICTs to play online games. It was deduced that the purposes of using ICTs were mainly for social networking, entertainment and seeking

agricultural information. This implies that with guidance from lecturers through demonstrating the use of ICTs, students will be able to make better choice by using ICTs for seeking agricultural information.

Table 5: Purposes of utilization of ICTs (n=147)

Purpose	Frequency	Percent
To chat with friends and relatives	136	92.5
To search for agricultural knowledge	98	66.7
To type assignments	69	46.9
To prepare power point presentation	49	33.3
To carry out data analysis	26	17.7
To read news	129	85.7
To send and receive emails	107	72.8
To watch entertainment videos	119	81.0
To watch agricultural videos	67	45.6
To play an online game	36	24.5
To listen to music	124	84.4

Source: Field survey, 2018

3.5 Self-perceived ICT skills

The results in Table 6 show that 37.4% respondents perceived ICT skills in receiving e-mail as very good, 32.7% perceived ICTs skill in sending e-mail as very good and 26.5% perceived ICTs skill in submitting e-mail attachment as very good. Also, 43.5% and 33.3% perceived ICTs skills in searching internet for information on a specific topic and downloading information to hard drive/flash drive from the internet as very good and good respectively. However,

44.9% respondents perceived ICTS skill in creating material for presentation using Power Points as poor and 42.2% perceived ICTS skill in using a spreadsheet for data analysis as poor. This implies that undergraduates ICT skills in some tasks for enhanced learning and communication are inadequate. Alston *et al.* (2009) found that agricultural employers rated spreadsheets, word processing, internet, accounting systems and presentation graphics as very important ICT skills.

Table 6: Distribution of respondents' self-perceived ICT skills (n=147)

ICT Tasks	Very good Freq (%)		Good Freq (%)		Fair Freq (%)		Poor Freq (%)	
Receiving e-mail	55	37.4	39	26.5	31	21.1	22	15.0
Sending e-mail	48	32.7	42	28.6	32	21.8	25	17.0
Submitting e-mail attachment	39	26.5	35	23.8	43	29.3	30	20.4
Typing assignment/project report using Word Processor	27	18.4	46	31.1	41	27.9	33	22.4
Searching the internet for information on a specific topic	64	43.5	36	24.5	24	16.3	23	15.6
Downloading information to hard-drive or flash drive from the internet	43	29.3	49	33.3	25	17.0	30	20.4
Creating material for presentation using PowerPoint	20	13.6	28	19.0	33	22.4	66	44.9
Using a social media platform to chat with your course mates	59	40.1	40	27.2	27	18.4	21	14.3
Downloading freeware from the internet	39	26.5	40	27.2	33	22.4	35	23.8
Making a presentation with PowerPoint	14	9.5	32	21.8	30	20.4	71	48.3
Tethering mobile phone to computer for internet access	33	22.4	47	32.0	34	23.1	33	22.4
Using Spreadsheet for data analysis	18	12.2	35	23.8	32	21.8	62	42.2

Source: Field survey, 2018

Furthermore, Table 7 reveals the level of self-perceived ICTs skills. More than half (51.7%) of the respondents had a low level of ICT skills. This could be as a result of inadequate training in ICTs and poor

Table 7: Self-perceived level of ICT skills (n=147)

ICT skills	Frequency	Percent
Low (12-30)	76	51.7
High (31-48)	71	48.3
Total	147	100.0
Mean 30.36		

Source: Field survey, 2018

ownership of ICTs. The finding agrees with that of Adetimirin (2012) who found that undergraduates of the state universities studied had poor ICT skills.

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3.6 Hypotheses testing

H₀1: There is no significant relationship between ownership of personal ICTs and utilization of ICTs.

The results of Chi-square (χ^2) analysis in Table 8 show that there were significant relationship between ownership of mobile/camera phone ($\chi^2=131.3$, $p<0.01$), computer ($\chi^2=81.392$, $p<0.01$), printer ($\chi^2=58.612$, $p<0.01$), scanner ($\chi^2=56.763$, $p<0.01$), I

pad/tablet ($\chi^2=75.378$, $p<0.01$), digital camera ($\chi^2=71.422$, $p<0.01$), flash drive ($\chi^2=86.526$, $p<0.01$), internet/modem ($\chi^2=90.774$, $p<0.01$), personal email ($\chi^2=99.054$, $p<0.01$) and utilization of ICTs. This implies that ownership of ICTs influences their utilization. The fact is that people who own ICTs have unlimited access to use, learn how to use or practice new skills using them.

Table 8: Chi-square analysis of ownership of ICTs and utilization of ICTs

Variables	χ^2	df	P	Decision
Mobile/Camera phone	131.3	3	0.000***	S
Computer	81.392	3	0.000***	S
Printer	58.612	3	0.000***	S
Scanner	56.763	3	0.000***	S
I pad/Tablet	75.378	3	0.000***	S
Digital Camera	71.422	3	0.000***	S
Flash drive	86.526	3	0.000***	S
Internet	90.774	3	0.000***	S
Personal email	99.054	3	0.000***	S

***Significant at $p\leq 0.01$

3.7 H₀2: There is no significant relationship between self-perceived ICT skills and utilization of ICTs.

The result of correlation analysis in Table 9 shows that there was a significant positive correlation between self-perceived ICTs skills ($r= 0.574$, $p<0.01$) and the

utilization of ICTs. The implication is that the undergraduates who have ICT skills will be confident in utilizing ICTs and will utilize ICTs. This finding agrees with the finding of Cretchley (2007) who reported the relevance of ICTs skills in improving ICTs use.

Table 9: Correlation analysis of self-perceived ICT skills and utilization of ICTs

Variables	Mean	r-value	p-value	Decision	Remark
Self-perceived ICT skills	30.37	0.574	0.000***	S	Reject
Utilization of ICTs	20.00				

***Significant at $p\leq 0.01$

Conclusion and Recommendations

The study investigated ownership and utilization of ICTs among undergraduates in the field of agriculture at the Federal University Gashua. Findings revealed that most undergraduates owned mobile/camera phone, internet and personal email. Ownership of computer was low just as utilization of ICTs among undergraduates was low. The purposes of utilizing ICTs by the respondents were mainly for social networking, entertainment and searching for agricultural information.

The respondents had low ICT skills, especially ICT skills in typing assignment/project report using Word Processor, creating material for presentation using Power Points, making presentation with Power Points

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and using a spreadsheet for data analysis. Ownership of ICTs and ICT skills influenced ICT utilization. Based on

the findings of the study, the following recommendations were made:

- (1) Undergraduates of agriculture should add computers to their ICT's kit because of the advantages they offer for performing various ICTs tasks.
- (2) Undergraduates should undertake training to boost their ICT skills in order to enhance ICTs utilization.

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