

UTILIZATION LEVEL OF ICT FACILITIES IN TEACHING AND LEARNING OF AGRICULTURAL SCIENCE IN TERTIARY INSTITUTIONS OF ANAMBRA STATE

Stella N. Ofofile and T.A.K. Nzeribe

Abstract

The study was designed to study the utilization level of ICT facilities in teaching Agricultural science in tertiary institutions in Anambra State. Two tertiary institutions that offer Agricultural science were used. All the 25 lecturers and 86 students formed the sample of the study. Percentages and means were used to analyse data collected from the questionnaire. The results of the study revealed that most ICT facilities are not available for teaching Agricultural Science though the lecturers and students are computer literate most teachers and students do not utilize most ICT facilities in teaching and learning. The study recommends amongst others that adequate fund should be allocated for the development of ICT by government and voluntary agencies. Seminars, workshops on ICT should be organized for teachers/students on regular basis for adequate capacity building on ICT.

A computer is an electronic machine operating under the control of instruction stored in its own memory unit which can accept and share data perform arithmetic and logic operation upon the data without human intervention and produce output from the processed data. Ajagun (2003) defined computer as any machine or device which under the control of stored program can accept data in a prescribed form; process the data and supply the result as information in a specified form. Williams (1999) opined that communication technology consists of electromagnetic devices and systems for communicating over long distances. The

principal examples are telephones, radio, television, cables. The major tool in information and technology is the computer while the telephone forms the core means of communication technology.

Information and Communication Technology will transform education from faculty centred to learner centred thereby making instruction better by replacing it with interactive, individualized learning, possibilities. It will improve scholar educational organization by facilitating interdisciplinary connections and encouraging academic “total quality management”. On-line education may be disseminated to millions who previously could not have hoped for a college education due to circumstance with the erosion of job tenure and job security. Hamilton and Miller (2007) viewed the information communication Technology era as being possible to deliver education on a mass based without the need to process the expenses of physical; infrastructure.

According to Mohammed (2003) a number of countries especially those in the developed world and some in the developing countries are putting in place policies and plans designed to transform their economics into an information and technology one, ICT is a potentially powerful tool for extending educational opportunities both formal and non-formal to previously under several constituencies and access to remote learning resources as teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries. ICT in the

classroom is used to prepare the current generation of students for a workplace where ICT's particularly computers, the internet and related technologies are becoming more and more ubiquitous.

ICT can be applied in various ways by teachers to store information such as planned lessons, diagrams and pictures of objects relevant to their teaching for retrieval when needed. Tull (2001) remarked that the internet could be used as instructional tool to explore, investigate, solve problems, interact, reason, communicate and learn many concepts in the school curriculum. Internet enable learners to exchange ideas with their peers from outside the classroom and even the country. The use of ICT facilities helps teachers to take care of students' individual ability by encouraging the use of different methods of teaching. Ebenebe and Ezenwosu (2006) noted that this is possible because the use of ICT enhances different methods of teaching and balances the teaching and learning materials thus de-emphasized the situation that is teacher centred and theoretical. As a result of ICT facilities, learner can no longer be viewed as empty vessels waiting to be filled but rather as active organisms seeking meaning, the teacher is that of a guide.

In developed countries like Europe and American, ICT has almost replaced conventional way of teaching and learning. i. Currently in Nigeria, there is a great demand for ICT driven education. The Federal Ministry of Education in conjunction with supervisory ii. bodies like National Universities Commission (NUC) National Commission for Colleges of iii. Education (NCCE) has taken a positive step towards meeting the computer demand in iv. education. For example computer education courses are now made compulsory for students in tertiary institution throughout the country.

Statement of the Problem

The world now faces a series of challenges. The changes in economic and technological developments are producing a new world wide economy that is global, high speed, knowledge driven disciplinarians and competitive. Nigeria has to meet the competitive challenges in terms of agility, networking, learning and to arrange production for the achievement of vision 2020. Rapid technological change and growth in knowledge and information will require constant learning. This rapid technological change had posed a challenge to the education sector. For the students to meet up with these challenges; there is the need to apply ICT in teaching and learning in higher institutions especially in agricultural science. The question now is there available ICT facilities for the teaching and learning of Agricultural science.

The question now is, are there available ICT facilities and what is their extent of utilization in teaching and learning of Agricultural Science.

Purpose of the Study

The study was aimed at finding out the utilization level of ICT facilities in teaching and learning of Agricultural Science in tertiary institutions of Anambra State. Specifically the study intends to:

- i. Find out the ICT facilities that are available for the teaching of Agricultural science in tertiary institutions
- ii. Find out the literacy level of Agricultural science teachers and students on ICT
- iii. Find out the extent of use of ICT facilities in teaching of Agricultural Science
- iv. The extent of use of ICT facilities in learning Agric Science.

Significance of the Study

The results of the study would be of immense benefit to the students, lecturers and the management of various tertiary institutions. The

study would reveal all the ICT facilities that are not available in schools so that they would be supplied. Lecturers and students could avail themselves of these benefits of ICT if they are computer literate, as it operates on computer based techniques. The attainment of the objectives of Agric science education through the use of ICT in teaching now stands a better chance of being achieved in less time as a result of multiple ways ICT can be employed in teaching. The result of the study would expose ICT facilities that are not available in tertiary institutions and the various institutional management should make effort to provide these facilities.

Research Questions

The following research questions were posed to guide the study

- v. What are the ICT facilities that are available for the teaching and learning of Agricultural Science in tertiary institutions of Anambra State?
- vi. What is the literacy level of Agricultural Science teachers in ICT?
- vii. To what extent are the available ICT facilities put to use by the Agricultural Science teachers
- viii. To what extent are the available ICT facilities put to use by Agricultural Science students.

Methodology

Research Design: The Study employed descriptive survey. A survey design is one in which a group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representatives of the entire group (Popoola, 2002).

Area of the Study

The study covered all the tertiary institutions in Anambra State that offer Agricultural Science education

Population for the Study

The population of the Study comprises of all the Agricultural Science lecturers and NCE students in tertiary institutions in Anambra State namely Federal College of Education (Tech), Umunze and Nwafor Orizu College of Education Nsugbe. There are a total of 25 lecturers and 86 Agricultural science students in the two schools and they were distributed as follows

S/N	Name of Schools	No of Lecturers	No of Students
ix.	Federal College of Education (Technical) Umunze	15	73
x.	Nwafor Orizu College of Education, Nsugbe	10	13
	Total	25	86

Source: *Statistics unit FCE(T), Umunze and Nwafor Orizu College of Education, Nsugbe 2012.*

Sample and Sampling Techniques

All the 25 agricultural science lecturers and 86 Agricultural Science students were used for the study. Hence no sampling was done because the number is small and manageable.

Instrument for Data Collection

The instrument for data collection is structured questionnaire which was developed by the researcher. The questionnaire consisted of two sections. Section A dealt with the personal data of respondents while section B consisted of items that addressed the research questions. The option are on four point scale as follows: used very often (UVO), use often (UO), rarely used (RU) and never used (NU).

Validation of the Instrument

The instrument was validated by giving it to two experts. In Agricultural Education of F.C.E. (T), Umunze and the validators made some comments which formed the basis for either modifying or rejecting some of the items

Method of Data Analysis

Research Questions 1 and 2 were analysed by using simple percentage while research question 3 and 4 was analysed using mean.

The mean was calculated by assigning nominal value to the response categories:

$$\begin{aligned}
 \text{Used very Often (UVO)} &= 4 \\
 \text{Used Often (UO)} &= 3 \\
 \text{Rarely Used (RU)} &= 2 \\
 \text{Never Used (NU)} &= 1 \\
 \text{The mean then is } &\frac{4+3+2+1}{4} = \frac{10}{4} \\
 &= 2.50
 \end{aligned}$$

Decision Rule

For research question and 1 and 2, any response that fall below 50% is rejected while 50% and above is not accepted. For research question 3 and 4, any response that fall below 2.5 is rejected while 2.5 and above is accepted.

Results

Table 1: Respondents Responses on the Availability of ICT Facilities for Teaching and Learning Agricultural Science

S/N	ICT facilities	Yes %	No %
xi.	Computer	100 (90)	11 (10)
xii.	Internet	2 (1.2)	109 (98)
xiii.	Video Cameras	111 (100)	0 (0)
xiv.	Offset Lithographics	111 (100)	0 (0)
xv.	Printing Machines	111 (100)	0 (0)
xvi.	Digital versatile disk	111 (100)	0 (0)
xvii.	Digital audio	111 (100)	0 (0)
xviii.	CD ROM	111 (100)	0 (0)
xix.	Video disc	111 (100)	0(0)
xx.	Television	111 (100)	0(0)
xxi.	Hyper media	111 (100)	0 (0)

In table 1 only the computer had the percentage which is accepted as ICT facilities available while internet, video, camera, offset lithographic, printing machines, Digit versatile disk, digital audio, CD Rom, video disc, television and Hypermedia had low percentages.

Research Question Two

What is the literacy level of Agricultural Science teachers on ICT

Table 2: Lecturers Responses on ICT Literacy

S/N	Items	Yes %	No %
xxii.	Do you teach with computer	25 (100)	0 (0)
xxiii.	Do you possess any formal training in computer	20 (80)	5 (20)
xxiv.	Have you operated computer before	25 (100)	0 (0)
xxv.	Do you use power point presentation	0 (0)	25 (100)
xxvi.	Have you browsed internet before	22 (88)	3 (12)
xxvii.	Do you have an E-mail address	25 (100)	0 (0)
xxviii.	Have you delivered on-line courses	10 (40)	15 (60)
xxix.	Can you access internet without assistance	5 (20)	20 (80)
xxx.	Have you attended any workshop/seminar on ICT	8 (32)	17 (68)

Items in table 2 showed that lecturers do not teach with computers (100%) 80% posses formal training in computer, 100% have operated computer, 100% dies not use power point presentation 88% have browsed, internet, 100% have E-mail address, 40% have delivered on-line courses 205 can access internet without assistance while 32% have attended workshop/seminar on ICT

Research Question 3

To what extent are the available ICT facilities put to use by the Agricultural science teachers.

Table 3: Mean Responses of Respondents on the Utilization of ICT Facilities in Learning Agricultural Science.

S/N	Items	UVO	VO	RU	NU	N	X	Remark
1.	Computer	-	-	-	25	25	1.00	Rejected
2.	Internet	-	-	-	25	25	1.00	Rejected
3.	Video camera	-	-	-	25	25	1.00	Rejected
4.	Offset lithographic	-	-	-	25	25	1.00	Rejected
5.	Printing machine	-	-	-	25	25	1.00	Rejected
6.	Digital Versatile disk	-	-	-	25	25	1.00	Rejected
7.	Digital Audio	-	-	-	25	25	1.00	Rejected
8.	CD ROM	-	-	-	25	25	1.00	Rejected
9.	Satellite connections	-	-	-	25	25	1.00	Rejected
10.	Video disc	-	-	-	25	25	1.00	Rejected
11.	Television	-	-	-	25	25	1.00	Rejected
12.	Hypermedia	-	-	-	25	25	1.00	Rejected

In table 3 the ICT facilities like computers, internet, video camera, offset lithographic, printing machines, Digital versatile disc, digital audio, CD Rom, satellite connections, video disc, television and hypermedia have mean values below the cut-off point of 2.50 and was rejected by respondents as ICT facilities used in teaching agricultural science.

Table 4: Mean Responses of Students on the Utilization of ICT Facilities in Learning Agricultural Science.

S/N	Items	UVO	VO	RU	NU	N	X	Remark
13.	Computer	-	-	-	86	86	1.00	Rejected
14.	Internet	-	-	-	86	86	1.00	Rejected
15.	Video camera	-	-	-	86	86	1.00	Rejected
16.	Offset lithographic	-	-	-	86	86	1.00	Rejected
17.	Printing machine	-	-	-	86	86	1.00	Rejected
18.	Digital Versatile disk	-	-	-	86	86	1.00	Rejected
19.	Digital Audio	-	-	-	86	86	1.00	Rejected
20.	CD ROM	-	-	-	86	86	1.00	Rejected
21.	Satellite connections	-	-	-	86	86	1.00	Rejected
22.	Video disc	-	-	-	86	86	1.00	Rejected
23.	Television	-	-	-	86	86	1.00	Rejected
24.	Hypermedia	-	-	-	86	86	1.00	Rejected

All the items like computer, internet, video camera, offset lithographic, printing machine, digital versatile disc, digital audio, CD Rom, satellite connections, video disc, television and hyper media had mean values of 1.00 respectively and was not accepted by the respondents as ICT facilities utilized in learning agricultural science.

Discussion

Results in table 1 showed that most ICT facilities such as internet, video camera, offset lithographic, printing machine, DVD, Digital audio, CD ROM, television, video disc, Hypermedia are not available for teaching and learning of Agricultural Science, only computer was found to be available. The findings are in line with what Zirra (2002) stated that ICT has already invaded and dominated education but its invasion into the system in most of the developing world's is lagging behind expectation.

Research question 2 seeks to find out the literacy level of teachers on computer. Results of the findings revealed that majority of the teachers are computer literate. Akale (2003) stated that it has become compulsory that all academic staff of colleges of Education in Nigeria acquired literacy and Proficiency in ICT since 2004. Also Liverpool (2002) stated that ICT is coming to Teacher Education through the Universities. Colleges of education and National Teachers Institute and through the computer Science and computer centres.

Results of Research Question 3 revealed that agricultural science teachers do not utilize ICT facilities. The reason being that most of the ICT facilities are not available in schools. The findings are in line with observation made by the Common Wealth Secretariat (1991) that in some developing countries teaching is still done using 19th century technologies and methods.

Results of Research question 4 revealed that most students do not utilize other ICT facilities apart from computer in learning. This means that they will lack 21st century skills which includes digital age literacy (consisting of functional, cultural, visual, scientific, technological, information literacy and global awareness).

Implications of the Study

When the necessary ICT facilities are not utilized in teaching and learning of Agricultural science in tertiary institutions, it will produce students who could not be able to work in most places, especially now that ICTs particularly internet and related technologies are becoming more and more ubiquitous. It also means that such students will not be able to access modern production technologies and latest research results and technique in agricultural production.

Conclusion

ICTs are one of the major contemporary factors in shaping the new global economy and producing rapid changes in society. For effective teaching and learning of agricultural science in tertiary institutions, ICT facilities should be made available and well utilized in teaching. The present school curricula at all level in developing nations should be over hauled to include practical training and retraining of people in the use of modern ICT to ensure adequate utilization of ICT facilities.

Recommendations

The following are recommended

- xxxi. Adequate fund should be allocated for the development of ICTs by both government and non-governmental Agents.
- xxxii. Agricultural science teachers should utilized various ICT facilities in teaching

- to make the subject interesting and for active participation of students.
- xxxiii. Students and teachers should avail themselves of these benefits of ICT by engaging themselves in computer training/workshops etc.
- xxxiv. Lecturers should place more emphasis on practicals.
- xxxv. Seminars/workshops should be organized regularly for the lecturers and students on the use of ICT.

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- Stella .N. Ofodile*
School of Agric/Home Economics
Federal College of Education (Technical),
Umunze.
- And*
- T.A.K Nzeribe*
School of Agric/Home Economics
Federal College of Education (Technical),
Umunze.