

CONTRIBUTION OF INFORMATION COMMUNICATION TECHNOLOGY TO EFFECTIVE TEACHING AND LEARNING OF AGRICULTURAL SCIENCE IN SOME SELECTED PUBLIC AND PRIVATE SECONDARY SCHOOLS IN IBADAN NORTH EAST LOCAL GOVERNMENT IN OYO STATE

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ABSTRACT: *This study investigates contribution of information communication technology to effective teaching and learning of agricultural science in some selected public and private secondary schools in Ibadan North East Local Government in Oyo State. A descriptive survey research design was adopted and a total population of one hundred (100) students and twenty (20) teachers; fifty (50) students from Ten (10) of the public and private secondary schools respectively and Ten (10) teachers from Ten of the public and private schools were randomly selected for the study. A self-structured questionnaire was used to collect information and a simple percentage and frequency count was used to analyses the collected data also the 4 point likert scale analysis was used to identify various contribution of ict to effective teaching and learning of agricultural science among both the teachers and students in the study area. The results of the findings showed that the use of computer technology in teaching and learning of agricultural science makes the subject more simple, understandable and improves the understanding of the students. It also revealed that students do not have adequate access to Information and Communication Technology (ICT) facilities in their schools except on their phones. Furthermore, the finding showed that majority of the private secondary schools are using computer technology effectively. In-service training on the use of computer technology and Information and Communication Technology (ICT) should be organized for the teachers and students in public secondary schools by the government.*

KEYWORDS: Information Communication Technology, Teaching, Learning, Agricultural Science, Public and Private Secondary Schools, Ibadan, Nigeria

INTRODUCTION

The term agriculture is derived from two Latin words, “ager” meaning field and “cultura” meaning cultivation. By this statement, agriculture means field cultivation. However, this is not a complete definition of agriculture since agriculture has to do with animal production also.

Agriculture can be broadly defined as the art and science of crop and animal production for human use. It can also be defined as the tilling of land for cultivation of crops and rearing of livestock for food and money.

A concise general definition of agriculture may be difficult to arrive at as agricultural science is a blend of many of the pure and applied sciences for example, botany, zoology, chemistry, genetics, entomology, physiology, bacteriology, geography, economics and physics.

Apart from farming which involves the cultivation of land for the production of plants and animals, the agricultural industry also involves those who supply inputs of production such as farm crop information, fertilizers, machinery, livestock feeds, those who collect, process, distribute and market farm produce, the researchers, and the extension agent who keep the farmers informed of new and better methods of farming. Oyewole and Alabi (2004).

Computer, is one of the key equipment of information communication technology (ICT), is an electromechanical device which accepts data as inputs, processes the data according to a set of previously stored instructions called program; stores and or releases the to results of processing (i.e information) as output. It is capable of solving problems or manipulating data by accepting the data, performing prescribed operations (Mathematical or logical) on the data and supplying the results of these operations. However, all types of computers consist of two basic parts viz; Hardware which is any part of computer physical structure such as the computer monitors or keyboard. Software on the other hand is any set of instructions that tells the hardware what to do. It is what guides the hardware and tells it how to accomplish each task. Some example of software is web browsers, games, and word processors such as Microsoft word. Raji et al; 2001).

Today, there are lots of every day devices that are basically specialized computers even though we do not always think of them as computers. Such includes tablet computers which uses touch sensitive screen for typing and navigation. Since they do not require keyboard or mouse, they are even more portable than laptops. The example of a tablet computer is an ipad. Many mobile phones can do a lot of things a computer can do, such as browsing the internet, playing games etc. These phones are often called “Smartphones”.

Technology on the other hand is described as the application of information in the design, production and utilization of goods and services and in the organization of human activities. Technology is generally dived into the following; Tangible (blue) prints, models, operating manuals, prototypes), intangible (consultancy, problem-solving and training methods), High (entirely or almost entirely automated and intelligent technology that manipulates ever finer matter and ever powerful forces, Intermediate (semi-automated partially intelligent technology that manipulates refined matter and medium level forces, Low (Labour-intensive technology that manipulates only coarse or gross matter and weaker forces. (Bushiness Dictionary com). Hence the aim of this research works to determine the contributions of computer technology in the teaching and learning of agricultural science.

Statement of the problem

Nigeria recognizes the importance of ICT, and its role in promoting development in all sectors such as economic, health, education, and agriculture. The successive development plans has confirmed, within the general objectives of the development, the need to focus on technology, including information communication technology, and to harness ict for the benefit of developments services. The literature recorded several instances where ICT was used as teaching aids to facilitate students learning especially in skilled based subjects like Accounting, fine Arts, technical subjects too with little or no reports on the application of ICT as teaching learning equipment in Agricultural Science in Nigeria Secondary Schools. Therefore, this study is aimed to evaluate the contribution of ICT to the teaching and learning of Agriculture in Nigerian secondary schools.

Significance of the study

This study which focuses on the use of ict in teaching and learning of agricultural sciences.

The significance are:

- i. It would provide an insight to the relevance of ICT as effective teaching and learning of agricultural science in secondary schools.
- ii. It would help in examining the importance of ICT in the presentation of learning concepts in Agriculture to students.
- iii. It would help to assess how students access the internet in other to increase their level of understanding.
- iv. It would provide knowledge of how the use of information communication technology stimulates the interests of students during teaching and learning of agricultural science.

Objectives of the study

The main objective of this study is to examine the contribution of ICT to effective teaching and learning of agricultural science in some selected public and private secondary schools in Ibadan North East Local Government of Oyo State.

Specific objectives.

- i. To examine the relevance of ICT in the effective teaching and learning of agricultural science in secondary schools.
- ii. To examine the importance of ICT in the presentation of information to students.
- iii. To determine the students access rate to internet so as to increase the level of understanding.
- iv. To examine the use of ICT to arouse the interest of students in teaching and learning of agriculture

Research hypothesis

- (i) There is no significant effect of using ICT on effective teaching and learning of agricultural science.
- (ii) There is no significant impact of ICT on learning concepts presentation in Agricultural science.
- (iii) The adoption of ICT in the teaching and learning of Agricultural Science does not increase students access rate to internet facilities.
- (iv) The use of ICT as teaching and learning aids in Agricultural Science will not stimulate the students interests significantly.

Scope of the study

The study is focused on the teachers and students of Agricultural science in some selected public and private secondary schools in Ibadan North East Local Government area of Oyo State.

The study is limited to ten(10) public and ten (10) private secondary schools randomly selected.

Definition of terms

For the purpose of effective understanding and avoidance of misinterpretation of some words used in this study, the following are explained.

Agriculture: this refers to the science or practice of farming including cultivation of the soil for the growing of crops and the rearing of animals for human uses.

Computer: refers to an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable program.

Technology: This is the application of scientific knowledge for practical purposes, especially in industry. It can also be referred to as machinery and equipment developed from such scientific knowledge.

Teaching: This is the occupation, profession or work of a teacher. It refers to the process of imparting knowledge and skills from a teacher to a learner.

Learning: This refers to the acquisition of knowledge or skills through experience, practice or study or by being taught. It is a goal directed act. It is acquiring new or modifying and reinforcing, existing knowledge, behaviours etc.

LITERATURE REVIEW

Application of ICT in Agriculture

In today's times, agriculture is not just about crop production or livestock farming activities. The challenges forth by ecological factors affecting the environment need to be a major consideration for any kind of farming activity. Farmers need to preempt environmental impact due to climate change and this is where modern technology comes to rescue (Preeti Sunil 2011).

Autonomous farm equipment and tractors

Owing to the use of technology, subject experts can come together to formulate courses, design assessments and better the process of teaching. The importance of technology in education can not be stressed enough. The introduction of technology in the educational field has made the process of learning and knowledge sharing a more interactive and pleasurable experience (Manali Oak, 2012).

The use of computers in industries is quite commonplace, owing to the past processing of information and timely deliverables. Almost everyone is aware that Information Technology (I.T) has played a very significant role in taking business to new heights (Stephen Rampur 2010.)

The impact of information technology on business has certainly changed the way businesses operate and have coordinated different practices of the firm to function collectively (Stephen, Rampur, 2010).

Okebukola (1998) the computer is expected to aid the teacher in instructional delivery and the learner to facilitate the learning process, thus the computers were meant to supplement and complement the effort of the teacher not to replace him.

The need for information and communication technology (ICT) application in nigerian secondary schools

Improved secondary education is essential to the creation of effective human capital in any country (Evoh, 2007). The need for information and communication technology (ICT) in Nigerian secondary schools cannot be over emphasized. In this technology-driven age, every one requires information and communication technology information and communication technology (ICT) competence to survive. Organizations are finding it very necessary to train and re-train their knowledge of computers and other information and communication technology (ICT) facilities (Adomi and Anie, 2006); Tyler, 1998). This calls for early acquisition of information and communication technology (ICT) skills by students.

The ability to use computers effectively has become an essential part of everyone's education. Skills such as book keeping, clerical and administrative work, stock taking and so forth, now constitute a set of computerized practices that form the core information Technology (IT) skills package, spreadsheets, word processors and database (Reffell and Whitworth, 2002).

RESEARCH METHODOLOGY

The Study Area

Ibadan North East Local Government was created on the 27th August, 1991 by the President and Commander-in-Chief of the Armed Forces, Federal Republic of Nigeria, General Ibrahim Badamosi Babangida F. ss., Mni,. It has its local government secretariat at the newly commissioned road called Emmanuel Alayande Road, on Iwo Road Ibadan. It is bounded in the east by Egbaeda and Ona Ara Local Government; Ibadan North Local Government in the west, while Lagelu and Akinyele share boundaries with it in the North; with Ibadan South East Local Government bounding it in the south.

It is endowed with a wide expanse of land, the populace consist of civil servants, traders and artisans whose business activity is the buying and selling of different types of goods.

Among such markets are Oje, Orita-Aperin, Agodi, Oja-Igbo and Oranmiyan Markets.

The local government has two health centres and 35 primary schools, there are 17 private secondary schools and 23 public secondary schools which are adequately staffed, among which are the famous Loyola College and Lagelu Grammar School.

Research Design and Instrument

Descriptive survey method was employed to collect data for the study from the sample chosen from target population.

The questionnaire was the instrument used for this research work. Two questionnaires were designed one for the teachers the other for the students (comprising teachers and student's questionnaire in both the public and private secondary schools)

Target Population

The population for this study includes 50 students of Agriculture and Agricultural science teachers randomly selected from 10 public secondary schools on one hand, and 50 students of Agricultural science teachers randomly selected from 10 private secondary schools Total student respondents were 100 while Total teacher respondents were 20.

Analytic Techniques

The major tools used for analysis in this study included simple descriptive statistical analysis such as mean and percentages which were used to report socio – economic characteristics of Agricultural science teachers and students. The 4 point likert scale analysis was used to identify various contribution of ICT to effective teaching and learning of agricultural science among both the teachers and students in the study area. Possible constraints were listed on a likert type scale with values of 4,3,2 and 1. A mean value of 3.00 was obtained by adding for each constraint area and any mean response higher or equal to 3.00 was regarded as a major constraint.

Data Analysis

Table 1: Distribution of respondents according to socio-economic characteristics

Respondent Characteristics	Public		Private	
	Frequency	Percentage	Frequency	Percentage
Age:				
21-25	1	10	3	30
26-30	2	20	4	40
31-25	3	30	2	20
36 and above	4	40	1	10
Mean				
Gender:				
Male	4	40	5	50
Female	6	60	5	50
Mode				
Marital Status:				
Single	2	20	4	40
Married	4	40	3	30
Widow	3	30	2	20
Divorced	1	10	1	10
Educational Qualifications				
NCE	4	40	2	20
OND	0	0	0	0
	0	0	1	10

HND	4	40	4	40
B.Sc	1	10	3	30
M.Sc	1	10	0	0
PGDE				
Teaching Experience of teachers	1	10	4	40
3-5 years	4	40	3	30
6-10 years	5	50	3	30
11 and Above				

Table 2: Distribution of respondents according to contribution of computer technology to effective teaching and learning of agricultural science in some selected public and private secondary schools in Ibadan North East Local Government in Oyo State

S/N	STATEMENT		SA	A	D	SD	X	Remark
1.	The use of computer makes teaching and learning of agricultural science effective	PB	10	7	2	1		
		PV	10	10	0	0		
2.	Application of computer technology makes learning permanent in students	PB	10	8	2	0		
		PV	10	10	0	0		
3.	Knowledge of Computer technology improves teacher's methodology towards his/her dissemination of information.	PB	8	8	2	2		
		PV	10	10	0	0		
4.	The use of computer enhances the presentation of information to students.	PB	8	8	2	2		
		PV	10	10	0	0		
5.	The use of computer technology often helps to arouse the interest of students in learning agricultural science	PB	9	8	2	1		
		PV	10	10	0	0		
6.	The computers available in the school are meant for office use only	PB	8	7	3	2		
		PV	2	3	7	8		
7.	The use of computer exposes the students to modern research findings in agriculture	PB	7	6	4	3		
		PV	9	8	2	1		
8.	There is free accessibility of students to computer available in the school	PB	1	2	8	9		
		PV	8	9	2	1		
9.	Computer application enable teacher's to retrieve vital information related to Agricultural science	PB	8	8	2	2		
		PV	9	9	1	1		
10.	The use of computer technology enables teachers to teach large population of students within a short time.	PB	4	4	7	5		
		PV	7	7	3	3		

Note: PB (Public Secondary School Teachers),
PV (Private Secondary School Teachers)

Table 3: Distribution of respondents according to socio-economic characteristics

Respondent Characteristics	Public		Private	
	Frequency	Percentage	Frequency	Percentage
Age:				
10-12	9	18	17	34
13-16	20	40	21	42
17-20	17	34	8	16
21 and above	4	8	2	4
Gender:				
Male	16	32	38	76
Female	34	68	12	24
Class of Students:				
J. S 1	5	10	5	10
J. S. 2	9	18	9	18
J.S. 3	9	18	9	18
S. S. 1	9	18	9	18
S. S. 2	9	18	9	18
S. S. 3				

ANALYSIS OF STUDENT'S RESPONSES IN BOTH PUBLIC AND PRIVATE SECONDARY SCHOOL

S/N	STATEMENT		SA	A	D	SD	X	Remark
1.	The use of computer technology increase the level of understanding of students in learning agricultural science.	PB PV	18 24	21 20	6 4	5 2		
2.	I rarely have access to I.C.T facilitates	PB PV	20 4	19 9	7 15	4 22		
3.	There is a computer laboratory in my school	PB PV	5 20	4 25	17 3	24 2		
4.	The use of computer applications arouse the interest of students towards learning of agricultural sciences.	PB PV	18 23	23 20	5 4	4 3		
5.	I have internet facilities in my house	PB PV	5 12	7 15	25 10	13 13		
6.	The computers available in the school are easily accessible by the studies	PB PV	9 22	5 20	25 4	11 4		
7.	My school has internet facilities	PB	4	6	19	21		

	that is functioning	PV	13	23	9	5		
8.	I do not have access to ICT all	PB	17	20	6	5		
		PV	7	13	10	20		
9.	I use I.C.T facilities every time especially on my phone	PB	16	18	10	6		
		PV	14	22	10	4		
10.	There is no computer technology facility in my school.	PB	18	14	8	10		
		PV	2	10	23	15		

Note: PB (Public Secondary School Teachers),
PV (Private Secondary School Teachers)

FINDINGS AND DISCUSSION

The findings of the research show that students do not have adequate access to ICT facilities in their various schools especially the public secondary schools except on their phones. In some public secondary schools where computers are available, students do not have access to them because they are meant for office use alone. Majority of the private secondary schools on the other hand are using internet facilities actively, ICT facilities are not available in public secondary schools in the study area and that the use of computer technology in teaching of agricultural science make the subject more simple and understandable and also improves the understanding of students in the subject.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of the Findings

This research work focuses on the contributions of computer technology to effective learning in teaching of agricultural science in both the public and private secondary schools in Ibadan North East Local Government area of Ibadan, Oyo State. A descriptive survey research design was adopted and a total population of one hundred (100) students and twenty (20) teachers; fifty (50) students from Ten (10) of the public and private secondary schools respectively and Ten (10) teachers from Ten of the public and private schools were randomly selected for the study. A self-structured questionnaire was used to collect information and a simple percentage and frequency count was used to analyses the collected data also the 4 point likert scale analysis was used to identify various contribution of computer technology to effective teaching and learning of agricultural science among both the teachers and students in the study area.

Conclusion

It can be concluded from the study that most public secondary schools in the study area lack computer technology and ICT facilities such as projectors, internets facilities and so on and most students get to use ICT on their phones or at Business centers.

Recommendations

From the result of this study, the research is able to conclude and thereby make the following suggestions and recommendations.

- Information and communication technology facilities should be provided in public secondary schools,
- In-service training on the use of computer technology and ICT should be organized for the teachers and students in public secondary schools by the government.
- Students should be discouraged from getting addicted to their phone so that they can concentrate on their academics and make good grade.
- Parents are hereby urged to try much as possible to buy at least a computer (either desktop or laptop) for use of their children's at home so as to increase the level of students accessibility to internet facilities.

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