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EXTENT OF UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) TOOLS FOR IMPROVING THE TEACHING AND LEARNING OF AGRICULTURAL EDUCATION FOR ACHIEVING FOOD SECURITY.

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Abstract

This work centered on the extent of utilization of Information and Communication Technology (ICT) tools for improving the teaching and learning of Agricultural Education in an Era of Uncertainty. Four purposes of study, four research questions and four hypotheses guided the study. Survey research design was adopted for the study. The population of the study was 160 lecturers and students of Agricultural Education. There was no sampling. The instrument used for the study was researcher's constructed titled: Instrument for extent of utilization of information and communication technology for improving the teaching and learning of Agricultural Education at the Tertiary institution in Ebonyi State (IEUICTITLAE). The instrument was validated by 5 experts, three experts in Agricultural Education, and two experts in Measurement and Evaluation, all from Ebonyi State University, Abakaliki. The reliability of the instrument was determined by the adoption of Cronbach Alpha techniques which yielded a reliability co-efficient of 0.832. The data collected were analysed using mean and standard deviation for the research questions while the hypotheses were tested using t-test statistics. Based on the analysis of the data, the following findings emerged; computer devices were moderately utilized for improving the teaching and learning of Agricultural Education, audio-video devices, internet and email devices were moderately utilized for improving the teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State. Based on the findings, it was recommended among other things that the Ministry of Education Ebonyi State should provide computer and computer devices to the tertiary institutions and as well organize seminar workshops and conferences on the utilization of the computer and audio visual, email and internet facilities to the institution which will help for improving the teaching and learning of Agricultural Education. The implication of the study educationally is that the use of ICT facilities for teaching of Agricultural Education is one of the ways of improving the institution and learning at the tertiary institutions in Ebonyi State.

Key words: Information; Communication; Technology; Agriculture; Education; Teaching; Learning

INTRODUCTION

Agricultural Education is the teaching of agriculture, natural resources, land management and guidance to prepare students for entry level jobs or for further education as well as to prepare students for advanced agricultural jobs. Waliki and Usman (2009) see agricultural education as a systematic, rational and an organized process of transmitting knowledge, skills, competences, attitude and habits in accordance with professional principles in agricultural production.

Egbule (2004) defines agricultural education as a process of training learners in the process of Agricultural productivity as well as the techniques for teaching of agriculture. Egbule (2004) emphasizes that every agricultural education teacher must be effective, liberally educated, current in subject matter and its pedagogy, aware of what is expected of teachers and schools, skillful and conscientious in planning, preparing for, carrying out instruction, respectful towards students and concern about their welfare, actively involved in faculty, professional and community affairs. Agu (2009) describes Agricultural education as a broad multidisciplinary field that deals with the selection, breeding and management of crops and domestic animals for economic production. It is a subject taught in tertiary institutions as a means for self-reliance and preparation for further studies.

Agricultural education in the context of this study therefore is a programme of studies designed for inculcation of the necessary skills for the practice of agriculture for effective citizenship and contribution to food security and national sustainability and skills for teaching of agriculture and related occupations.

The important of agricultural education reflects to the ability to stimulate students' interest in agriculture, enable students acquire basic knowledge of agricultural production, develop basic agricultural skills in students, expose students to opportunities in the field of agriculture, prepare

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students for further studies in agriculture and to prepare students for occupation in Agriculture (Wheelus, 2009).

The objectives of agricultural education according to Osinem (2004) and Ndem (2020) are; to produce teachers of agriculture in tertiary institution, teacher training colleges and agricultural institutions, to plan, develop, implement and evaluate agricultural extension and rural development programmes, to plan, develop implement programmes, to manage educational and agricultural organizations, to design and conduct research in agricultural education and agricultural extension, to develop and conduct training in agricultural education and agricultural extension, to pursue further training in agricultural education, agricultural extension and related disciplines, to develop skills and basic scientific knowledge and competencies required in agricultural production, to develop an understanding and appreciation of career opportunities in agricultural occupation and the preparations required to progress in

production agriculture, agricultural business and other careers in agriculture, to develop leadership qualities, attitudes, thrifts, scholarship co-operations, citizenship and patriotism by participating in experiences and activities of agricultural programmes, to develop the ability to secure satisfaction in placement and advancement in agricultural occupation through programmes on continuing education, to develop competencies required by individuals engaged in agriculture, and to develop practical skills and competencies in agricultural research.

Tertiary institutions are the institutions of learning after the secondary schools. They include the colleges of education, poly and mono techniques and Universities. At the tertiary institutions, the teaching and learning of agricultural education takes place for the training of qualified manpower in agricultural education.

Teaching therefore is the process of passing useful information to less experience person by more experienced person. Smith (2005) defines teaching as the action of a person who transmits knowledge to the learner. According to Farrant (1998), teaching is the process of imparting knowledge skills, attitudes, beliefs and feelings to someone, with the aim of bringing about particular changes in a person. Farrant (1998) pointed out that teaching and learning are opposite sides of the same coin, in that a knowledge cannot be acquired until it is been taught by the teacher. He further explained that learning only occur after teaching. Teaching according to Nwanni and Ogbonnaya (2009) is an active process in which one person shares information with others to provide them with information to make behavioral changes which also results to learning.

Teaching according to Ndem (2020) is an interpersonal relationship or influence aimed at changing the behaviour of other person called the learner or student. He further explained that teaching is the process or sequence of actions that is aimed at modifying the behavour of another person regarded as the learner. He further stressed that the central focus of teaching is that it involves interaction between the teacher and the learner. In the context of this study the teacher is referred to as the lecturer while the learner is the student. The lecturer in this study is the trained academics who teach at the tertiary institutions of learning while the students are those that are being taught by the lecturers at the tertiary institutions. The tertiary institution is an education system after the secondary education. The tertiary institution could be College of Education, Polytechnic, Mono-techniques and the University. These institutions offer different varieties of courses for manpower development in the society which occurs as a result of effective teaching and learning.

Learning on the other hand, is a lifelong process of transforming information and experience into knowledge, skill behaviors and attitudes (Coob, 2009). Similarly, learning can be seen as acquiring knowledge and skill and having them readily available from memory so that one can make sense of future problems and opportunities (Mc Danie, 2006). Learning is therefore, a relatively permanent changes in a person's knowledge or behavior due to experiences. In the context of this study; learning is acquisition of

information such as skills, knowledge, competencies, habits and norms. Aduwa and Iyamu (2004) reported that the teaching and learning of agricultural education can be enhanced when information and communication technology tools are effectively utilized by the teachers to teach the students. Information and Communication Technology (ICT) is therefore a term that describes types of technology that are used specially for communications. It focuses more on technologies that deal with communication, such as cell phones, the internet and wireless networks, among other things (Young, 2012).

ICT is an acronym that stands for information and communication technology. It covers any product that are used to store, retrieve, manipulate, transmit or receive information electronically in a digital form. Information and communication Technology (ICT) is also an extended term for information technology (IT) which stresses the role of unified communication tools such as telephone, wireless, signals, computers, audio-usual system, overhead projector, power points, electronic/magnetic board, email, television. ICT is one of the economic development pillars to gain natural competitive advantage. It can improve the quality of human life because it can be used in teaching and learning of agricultural education. Annan (2002) noted that information and communication technology helps in building human capacity. Information and communication technology and component tools can be used to facilitate the teaching and learning of agricultural education in the tertiary institutions especially in the developing countries like Nigeria (Egunjobi, 2015).

Prominent among the components of ICT are Computer, overhead projector and power-point, Email, audiovisual and internet. Computer is an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable programmed to carryout sequences of arithmetic calculations and other functions. Computer is a programmable electronic device that accepts raw data as inputs and processes it with a set of instructions. The basic functions of a computer are input, output processing, storage of information, transfer of information and presentation of information to the users. Similarly, overhead projector and power point is one of the ICT components. Overhead projector is a device that projects and enlarges images of an acetate or other transparency placed on it on to a wall or screen by means of an overhead mirror, while the power point is a presentation progamme (Gaskins and Austin, 1991). They further explained that power point is a software programme that has become a basic means of delivering presentations in lectures and seminars as well as during workshops and conferences. They added that power point is a presentation programme which incorporates graphics, animation and other variables to produce a clear presentation.

Aduwa and Iyamu (2004) reported that the teaching and learning of agricultural education can be enhanced when ICT are effectively

utilized by the lecturers at the tertiary institutions but this can be ascertained under empirical subjection. The introduction of information and communication technology in the curriculum of the tertiary education system in Nigeria was a well taught idea. The basic aim of introducing ICT into the educational system in Nigeria among others were to develop teachers' technology skills and knowledge of a new pedagogic approaches as well as improve student's performance by the intelligent application of technology that will increase the effectiveness and efficiency of teaching and learning process (Yusuf, 2005).

Based on the aim of introducing ICT into tertiary education system, in Nigeria, it is expected that by now, lecturers and students must have embraced the utilization of ICT tools in teaching and learning respectively. It is on this basis that the work is designed to empirically determine the extent of utilization of information and communication technology to facilitate teaching and learning of agricultural education in tertiary institutions in Ebonyi State.

Statement of the Problem

There has been serious debate on the issue of analogue teaching and learning especially using chalk board in a classroom. This made the Federal Ministry of education to introduce the use of ICT in teaching and learning in all levels of education. Recently, the use of information and communication technology in teaching and learning in the tertiary institutions has been emphasized also by the National University Commission (NUC), National Commission for Colleges of Education (NCCE) and the National Board for Technical Education (NBTE). But it appears that the use of ICT in teaching and learning in the tertiary institutions has not been given adequate attention. However, this has to be verified empirically.

This is evidenced by the fact that many lecturers still use the traditional chalk board in their teachings. It is rare to see lecturers using electromagnetic board, email, internet in the teaching in the tertiary institutions in Ebonyi State. Equally students still carry out their assignment in typed hard copies whereas at this stage of development of information and communication technology, lecturers are expected to deliver their lectures using some of the ICT tools such as e-mail, internet services, whatsapp, magnetic boards, overhead projection and power points, but this is not so as have been observed in the tertiary institution in Ebonyi State. It has been observed also that many students defend their projects and seminars without overhead projectors and power points which simplifies concept and makes teaching and learning easier and interesting. The non-utilization of ICT tools in teaching and learning have several consequences. For instance, lots of time are spent in sourcing materials, but with the use of ICT tools, materials can easily be sourced and assessed. Equally, the utilization of ICT in teaching and learning makes the work of the lecturer very simple and faster. A lecturer can give his or her assignments through text message, whatsapp, e-mail and others while students can electronically submit their assignments in soft

copies which can be easier and faster. Carrying of hard copies of lecture notes by the lecturers could be reduced when ICT is effectively utilized both by the lecturers and the students. It is against this back ground that this work is designed to ascertain the utilization of ICT in teaching and learning of Agricultural education in the tertiary institutions in Ebonyi State.

Purpose of the Study

The general purpose of the study is to determine the extent of utilization of information and communication technology in facilitating teaching and learning of agricultural education in tertiary institutions in Ebonyi State. Specifically, the study sought to ascertain:

1. the extent of utilization of computer devices for improving the teaching and learning of Agricultural Education in tertiary institutions in Ebonyi State.
2. the extent of utilization of audio visual devices for improving the teaching and learning of Agricultural Education in tertiary institutions in Ebonyi State
3. the extent of utilization of internet facilities for improving the teaching and learning of Agricultural Education in tertiary institutions in Ebonyi State.

Research Questions

The following research questions guided the study

1. What is the extent of utilization of computer devices for improving the teaching and learning of Agricultural Education in tertiary institutions in Ebonyi State?
2. What is the extent of utilization of audio visual devices for improving the teaching and learning of Agricultural Education in tertiary institutions in Ebonyi State?
3. What is the extent of utilization of internet facilities for improving the teaching and learning of Agricultural Education in tertiary institutions in Ebonyi State?

Research Hypotheses

The following null hypothesis will be tested for the study:

$H_{O1:}$ There is no significant difference between the mean ratings of the lectures and the students on the extent of utilization of computer aided devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

H_{O2}: There is no significant difference between the mean ratings of the lectures and the students on the extent of utilization of Audio-visual devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

H_{O3} There is no significant difference between the mean ratings of the lectures and the students on the extent of utilization of internet devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

METHODOLOGY

The research design applied for this study was the descriptive survey design. Survey research design can be defined as plans, structure and the strategies the researcher wants to use in order to obtain reliable results to research questions and hypothesis formulated for the study (Okolo, 2002). This kind of design centers on respondents opinion, belief, ideas, knowledge and attitude (Ali, 1996). The reason for using this design was because the opinions of the respondents were collected using questionnaire and data analysed without manipulation. The area of this study was Ebonyi State. Ebonyi State is in the South Eastern Nigeria. The population of the study was 165. This comprised of 56 teachers and 109 students of Agricultural Education in Ebonyi State University Abakaliki, Federal University Ndufu Alike, Ebonyi State, College of Education Ikwo, Akanu Ibiam Federal Polytechnic Uwana and Federal College of Agriculture Ishiagu. There was no Sampling; the whole population was used because the population was manageable. According to Nwanna (2006) who said that if the population of a study is small and manageable, the whole population can be studied.

The instrument for data collection was structured on 4 points rating scale titled (EUICTTITLA). The instrument was in two sections, section "A" and "B". Section "A" collected data on the demographic variables of the respondents and section "B" was sub-divided into clusters 1, 2, 3 and 4. Cluster 1 gathered data on the extent of utilization of computer devices for improving the teaching and learning of agricultural education with 15 items, cluster 2 got information on the extent of utilization of audio video devices for improving the teaching and learning of Agricultural Education with 11 items, cluster 3 elicited information on the extent of utilization of internet for improving the teaching and learning of agricultural education with 15 items while cluster 4 collected information on the extent of utilization of e-mail for improving the teaching and learning of Agricultural Education with 17 items. Four points rating scale was adopted in constructing the instrument such as very highly utilized (VHU), highly utilized (HU), moderately utilized (MU) and not utilized (NU) with their numerical values of 4, 3, 2, and 1 respectively. Validity of the instrument was carried out by giving the instrument to 3 experts: Two experts in Agricultural Education and 1 expert in measurement and evaluation, all from Ebonyi State University. The validators were asked to assess the instrument based on content coverage, relevance of each item, suitability of each item and grammatical constructions. The suggestions of the validators were incorporated in the final drafting of the instrument.

Reliability is referred to as the consistency in achieving similar result when the same research method is applied to other similar situation (Anikpo, 1996). The reliability of the instrument was determined by carrying out a pilot test by administering 30 copies of the instrument to 30 respondents at the University of Uyo in Akwa Ibom State. The data from the pilot test was

analysed using Cronbach Alpha reliability test which yielded reliability coefficient of 0.832. The researcher's collected data with the help of 4 research assistants by visiting the tertiary institutions in Ebonyi State. The total of 165 instrument were distributed to the respondents with the help of the research assistants. Then one hundred and sixty (160) copies of the instrument were retrieved while 5 copies were not retrieved from the respondents. The retrieval was 96.96% percentage of return. The data collected were analysed using mean and standard deviation for the research questions with the aid of Statistical Package for Social Sciences (SPSS) version 21. The hypotheses were tested using t-test statistics at 0.05 level of significance.

In taking decision, any item with the mean score of 3.50 – 4.00 was regarded as the ICT device being highly utilized, and mean range of 2.50 – 3.49 was regarded as highly utilized, any mean within 1.50 – 2.49 was regarded as moderately utilized and any item with the mean score of 0.50 – 1.49, was regarded as device not utilized for teaching and learning Agricultural Education at the tertiary institution. In testing the hypotheses, the t-calculated was compared with the t-critical t-table. When the t-calculated was less than the t-table, the null hypotheses was accepted and if the t-calculated was greater than the t-table, the null hypotheses was not accepted at 0.05 level of significance, on the other hand, if the t-value is less than 0.05%, the null-hypothesis was accepted and if the t-value was greater than 0.05%, the null-hypothesis was not accepted.

RESULTS

The researcher's presents the result of the work according to the research questions posed for the study. Research Question 1: What is the extent of Utilization of Computer Aided devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions in Ebonyi State?

Table 1: Mean and Standard Deviation of the Respondents on the extent of Utilization of Computer Aided devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions

S/N	Computer Devices	*		Remarks
	Keyboard			N160
			SD	
1		2.98	0.27	HU
2		CAD Editors	2.04	0.23 MU
3		CAD geometrics design	1.23	0.68 NU
4		3D modeling	2.13	0.47 MU
5		3D computer graphics design	2.04	0.49 MU
6		CD-ROMS compact disk readers	1.98	0.36 MU 7
		Scanning machines	2.06	0.42 MU 8 Printers
			2.12	0.47 MU
9	3D CAD programme	1.96	0.53	MU
10	Computer open hardware	1.97	0.69	MU
11	Photocopying machines	2.08	0.50	MU

12	Laptop	2.18	0.63	MU
13	Mouse	2.00	0.25	MU
14	Micro phone	2.00	0.39	MU
15	Joy stick	1.12	0.51	NU
	Grand Mean	1.99		

Key: Highly Utilized MU = Moderately Utilized NU = Not Utilized

Table 1 revealed that the mean scores of the respondents ranged between 2.98 and 1.23 and the standard deviation ranged between 0.69 and 0.23. This signifies that of computer devices were moderately utilized for improving teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State. The scores of the standard deviations revealed that the responses of the respondents did not deviate far from the central means.

Research Question 2: What is the extent of Utilization of Audio Visual devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions in Ebonyi State?

Table 2: Mean and Standard Deviation of the Respondents on the extent of Utilization of Audio Visual devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions

N160

S/N	Audio Visual Devices	x	SD	Remarks
1	DVD set	2.07	0.41	MU
2	Multimedia projector	2.16	0.51	MU
3	Powerpoint	2.03	0.77	NU
4	Video conferencing	1.93	0.47	MU
5	Radio cosset	2.10	0.48	MU
6	Digital camera	2.01	0.31	MU
7	Recording software	1.97	0.47	MU
8	Television set	2.88	0.47	HU
9	Compact disk	2.10	0.58	MU
10	Mass storage device (flash) and CD	2.68	0.70	HU
11	Digital projector	2.06	0.36	MU
	Grand Mean	2.18		

Key: Highly Utilized MU = Moderately Utilized NU = Not Utilized

Table 2 shows that the mean scores of the respondents ranged between 2.88 and 1.93 and the standard deviation ranged between 0.77 and 0.31. This is an indication that the respondents agreed that audio visual devices are moderately utilized for teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State. The scores of the standard deviations indicates that the responses of the respondents did not deviate far from the central mean.

Research Question 3: What is the extent of Utilization of Internet devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions in Ebonyi State?

Table 3: Mean and Standard Deviation of the Respondents on the extent of Utilization of Internet devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions

N160

S/N	Internet Devices	x	SD	Remarks
1	Website 2.05	0.27	MU	
2	Internet connectivity	2.03	0.31	MU
3	Closed circuit television channel	1.96	0.37	MU
4	Anti-virus software	2.16	0.60	MU
5	Search engine 2.78	0.60	HU	
6	Fax machines 2.03	0.63	MU	
7	Server and hubs 2.11	0.54	MU	
8	Data processor 2.08	0.61	MU	
9	File transfer protocols (FTP)	2.90	0.45	HU
10	Wireless fidelity (WiFi)	2.22	0.53	MU
11	Local Area Network	2.23	0.71	MU
12	Wide Area Network	2.54	0.68	HU
13	E-library 3.00	0.20	HU	
14	Chat facilities 2.98	0.25	HU	
15	Smart phones 2.98 0.25 HU Grand Mean	2.40		

Key: Highly Utilized MU = Moderately Utilized

Table 3 indicates that the mean scores of the respondents ranged between 3.00 to 2.98, and the standard deviation which ranged between 0.71 and 0.25. This signifies that the respondents agreed that internet is a moderately utilized for improving the teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State. The scores of the standard deviation shows that the mean scores of the respondents did not deviate far from the central mean. Hypotheses

HO_1: There is no significant difference between the mean ratings of the lectures and the students on the extent of utilization of computer aided devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

Table 5: t-test Analysis on the extent of utilization of Computer Aided devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

S/N	Item statements	Group	N	x	SD	DF	t-cal	t-tab	Interpretation
1	Keyboard	Lecturers	56	2.98	0.27				
						158	0.12	1.96	Nsd
		Students	109	2.97	0.26				
2	CAD Editors	Lecturers	56	2.05	0.21				
						158	-0.14	1.96	Nsd
		Students	109	2.01	0.22				
3	CAD geometrics design	Lecturers	56	1.23	0.23				
						158	-0.12	1.96	Nsd
		Students	109	1.24	0.25				
4	3D modeling	Lecturers	56	2.13	0.68				
						158	0.61	1.96	Nsd
		Students	109	2.05	0.66				
5	3D computer graphics design	Lecturers	56	2.06	0.47				
						158	-0.18	1.96	Nsd
		Students	109	2.08	0.54				
6	CD-ROMS compact disk	Lecturers	56	2.12	0.49				
						158	-0.20	1.96	Nsd
	readers	Students	109	2.14	0.44				

7	Scanning machines	Lecturers	56	1.96	0.36				
						158	0.80	1.96	Nsd
		Students	109	2.88	0.45				
8	Printers	Lecturers	56	1.97	0.42				
						158	1.00	1.96	Nsd
		Students	109	1.87	0.43				
9	3D CAD programme	Lecturers	56	2.08	0.47				
						158	-0.10	1.96	Nsd
		Students	109	2.99	0.50				
10	Computer open hardware	Lecturers	56	2.18	0.53				
						158	-0.09	1.96	Nsd
		Students	109	2.19	0.60				
11	Photocopying machines	Lecturers	56	2.00	0.69				
						158	-0.20	1.96	Nsd
		Students	109	2.02	0.68				
12	Laptop	Lecturers	56	2.12	0.50				
						158	-0.30	1.96	Nsd
		Students	109	2.15	0.49				
13	Mouse	Lecturers	56	2.44	0.63				
						158	0.08	1.96	Nsd
		Students	109	2.43	0.62				
14	Micro phone	Lecturers	56	2.26	0.63				
						158	-0.83	1.96	Nsd
		Students	109	2.36	0.62				
15	Joy stick	Lecturers	56	2.38	0.25				
						158	0.42	1.96	Nsd
		Students	109	2.35	0.22				

Table 5 reveals that all the items had their t-cal less than the t-table at 158 degree of freedom, so the null hypothesis was accepted. This implies that the opinions of the lecturers did not differ from that of the students on the extent of utilization of computer aided devices for improving the teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State.

HO_2: There is no significant difference between the mean ratings of the lectures and the students on the extent of utilization of audio visual devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

Table 6: t-test Analysis on the extent of utilization of Audio Visual devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

S/N	Item statements	Group	N	X	SD	DF	t-cal	t-tab	Interpretation
1	DVD set	Lecturers	56	2.07	0.41				
		Students	109	2.09	0.44	158	-0.20	1.96	Nsd
2	Multimedia projector	Lecturers	56	2.16	0.51				
		Students	109	2.18	0.46	158	-0.18	1.96	Nsd
3	Powerpoint	Lecturers	56	2.03	0.77				
		Students	109	2.04	0.78	158	-0.07	1.96	Nsd
4	Video conferencing	Lecturers	56	2.66	0.47				
		Students	109	2.56	0.48	158	1.00	1.96	Nsd
5	Radio cosset	Lecturers	56	2.10	0.48				
		Students	109	2.12	0.50	158	0.20	1.96	Nsd

6	Digital camera	Lecturers	56	2.01	0.31				
		Students	109	2.03	0.33	158	0.25	1.96	Nsd
7	Recording software	Lecturers	56	1.97	0.47				
		Students	109	1.98	0.49	158	-0.10	1.96	Nsd
8	Television set	Lecturers	56	2.88	0.47				
						158	-0.11	1.96	Nsd
		Students	109	2.90	0.47				
9	Compact disk	Lecturers	56	2.10	0.58				
						158	-0.25	1.96	Nsd
		Students	109	2.13	0.59				
10	Mass storage device (flash) and CD	Lecturers	56	2.68	0.70				
						158	0.15	1.96	Nsd
		Students	109	2.66	0.80				
11	Digital projector	Lecturers	56	2.06	0.36				
						158	-0.11	1.96	Nsd
		Students	109	2.07	0.37				

Key: Nsd = Not Significant different

Table 6 shows that all the items had their t-calculated less than the t-table of 1.96 at 158 degree of freedom. The implication is that the null hypothesis was accepted which means that the responses of the lecturers and the students were the same on the extent of utilization of audio visual devices for improving the teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State.

HO_3: There is no significant difference between the mean ratings of the lectures and the students on the extent of utilization of internet devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

Table 7: t-test Analysis on the extent of utilization of internet devices for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State

S/N	Item statements	Group	N	X	SD	DF	t-cal	t-tab	Interpretation
1	Website	Lecturers	56	2.05	0.27				
						158	-0.51	1.96	Nsd
		Students	109	2.09	0.28				
2	Internet connectivity	Lecturers	56	2.03	0.31				
						158	-0.37	1.96	Nsd
		Students	109	2.06	0.40				
3	Closed circuit television channel	Lecturers	56	1.96	0.37				
						158	1.00	1.96	Nsd
		Students	109	1.87	0.38				
4	Anti-virus software	Lecturers	56	2.16	0.60				
						158	-0.16	1.96	Nsd
		Students	109	2.18	0.55				
5	Search engine	Lecturers	56	2.78	0.61				
						158	-0.16	1.96	Nsd
		Students	109	2.80	0.70				

6	Fax machines	Lecturers	56	2.03	0.62								
									158	-0.25	1.96	Nsd	
		Students	109	2.06	0.63								
7	Server and hubs	Lecturers	56	2.11	0.54								
									158	0.09	1.96	Nsd	
		Students	109	2.10	0.57								
8	Data processor	Lecturers	56	2.90	0.45								
									158	0.20	1.96	Nsd	
		Students	109	2.88	0.44								
9	File transfer protocols (FTP)	Lecturers	56	2.22	0.53								
									158	-0.09	1.96	Nsd	
		Students	109	2.23	0.62								
10	Wireless fidelity (WiFi)	Lecturers	56	2.23	0.71								
									158	-0.15	1.96	Nsd	
		Students	109	2.25	0.70								
11	Local Area Network	Lecturers	56	2.23	0.53								
									158	-0.45	1.96	Nsd	
		Students	109	2.28	0.62								
12	Wide Area Network	Lecturers	56	2.54	0.68								
									158	-0.07	1.96	Nsd	
		Students	109	2.55	0.62								
13	E-library	Lecturers	56	3.00	0.20								
									158	-0.14	1.96	Nsd	
		Students	109	3.01	0.23								
14	Chat facilities	Lecturers	56	2.98	0.25								
									158	-0.14	1.96	Nsd	
		Students	109	2.99	0.28								
15	Smart phones	Lecturers	56	2.98	0.24								
									158	-0.14	1.96	Nsd	
		Students	109	2.99	0.27								

Key: Nsd = Not Significant different

Table 7 shows that all the items had their t-calculated less than t-tabulated at 158 degree of freedom and at 0.05 level of significance. Therefore the null hypothesis was accepted. This implies that the opinions of the lecturers were the same with the students on the extent of utilization of internet devices for improving the teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi
State.

Findings of the Study

Based on the analysis of the data, the following results emerged;

1. Computer aided devices such as scanner, laptops, desktops, photocopies, mouse among others were moderately utilized for improving the teaching and learning of Agricultural Education
2. Audio-Visual devices such as projectors, powerpoints, radio cassette, video conferencing, digital camera, television, DVD machine and multi-media projectors were moderately utilized for teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State.

3. Internet devices such as website, internet connectivity, closed circuit television channel, antivirus software, search engine, Fax machines among others were moderately utilized for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State
4. There was no significant difference in the opinions of the lecturers and the students on the extent of utilization of computer devices, audio visual devices, and internet devices for improving the teaching and learning of Agricultural Education at the tertiary institutions in Ebonyi State, Nigeria.

DISCUSSION OF THE FINDINGS

The researcher presents the discussion of the findings under the following sub-headings extent of utilization of computer devices for improving teaching and learning, the extent of utilization of audiovisual devices, internet devices and E-mail devices for improving the teaching and learning of Agricultural Education at the tertiary institutions.

Extent of Utilization of Computer Devices for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions in Ebonyi State

One of the findings of the study is that computer devices are moderately utilized for improving the teaching and learning of Agricultural Education. This finding supports the findings of Resta (2002) who reported that computer is used by teachers to check correct spelling, to draw diagrams while teaching. The author further stated that students use computer to type their assignment, process and analyse data as well as sourcing information related to Agricultural Education. Blissmer (2003) reported that computer is vastly utilized by the teachers and students to calculate figures, plotting of graph and storing information. The author further stressed that computer has been utilized by teachers and learner for so many years in teaching and learning both at the primary, secondary and tertiary institution. This he said has made the process of teaching and learning easier and interesting.

Extent of Utilization of Audio-Visual devices for Improving the Teaching and Learning of Agricultural Education

This work found that audio-visual devices are moderately utilized for improving the teaching and learning of Agricultural Education. This findings supports the work of Monica (2013) who reported that information and communication technology are applied in the agricultural sector especially the application of audio-visual devices in teaching and learning of agriculture. She pointed out that when the teacher teaches with overhead projector, the visual power of the students improves and visuality increases while teaching and learning process goes on. She further explained that students become more excited when the teacher uses power point in teaching which eliminates unnecessary details, facts and boredom in the students. Also this finding is in agreement with Ephraim and Gloria (2013) who reported that the application of information and communication technology such as the use of audiovisual devices like video

cassette enhances the students understanding in teaching of agricultural extension services. The authors further stated that students can easily identify tinny specimens when it is magnified with using overhead projectors. They further added that the utilization of audio-visual devices like the video cassette, power-points and television in teaching and learning promotes the visual powers of the learners and increase the curiosity. This is because seeing and hearing the facts being learnt makes the students retentive memory to improve students become more interested in learning when they can see, touch and feel what they are being taught. The ideas and facts learnt cannot be forgotten when the teaching and learning process is practically demonstrated. The authors stressed that over-head projectors can produce and magnify beautiful images at size of 90 inches to 120 inches diagonal far larger than any one produced by flat screen television when applied in teaching and learning process.

Extent Utilization of Internet for Improving the Teaching and Learning of Agricultural Education

One of the findings of this research is that the internet is moderately utilized for improving the teaching and learning of agricultural education at the tertiary institutions in Ebonyi State. This findings is in agreement with the finding of Olatomide (2012) who reported that the utilization of internet has tremendously improved the teaching and learning of Agricultural Science both at the tertiary and secondary institutions. He stressed that teachers and students download information relating to Agricultural Education for teaching and learning and for assignments and project works. The author further pointed out that students exchange ideas with one another as well as teachers with one and another and with the student by using internet devices. The use of internets has made the student carry out effective self-study and independent in their study habit.

Additionally, this finding supports Hamilton (2011) who reported that students and teachers use internet source vital information relating the Agricultural Science and related fields of study. He further remarked that internet is being utilized by the students and teacher to browse for materials for assignment, projects and personal uses. The utilization of internet has made teaching and learning interesting, excited and easier.

Extent of Utilization of E-mail for Improving the Teaching and Learning of Agricultural Education at the Tertiary Institutions

This research also came out with the finding that email is moderately utilized for improving the teaching and learning of Agricultural Education. This result is in support of the findings of Omwenga (2012) who reported that teachers communicate information relating to the courses being taught to the students, and students feedback their teachers through emails too. He further explained that students exchange ideas with their fellow students and their teachers both within and outside the country using email and other emailing devices. The author stated that utilization of email in teaching and learning has made teaching and learning process interesting, easier and faster. Teaching with the application of email makes the work of the teacher easier, simple and interesting. Information can be

delivered faster and accurately from the teacher to the student and from the student to the teacher and from student to student. Ideas can also be transmitted from the student to student and knowledge could be given to the student by the teacher through the use of e-mail. The teaching and learning of Agricultural Education can be improved greatly by the use of e-mail devices such as whatsapp, To-go, twitter, instagram, telegram and many others. Furthermore, Agbulu (2010) reported that Agricultural Education can be taught using information and communication technology. In his own assertion, Egunjobi (2015) reported that the use of ICT devices such as email has promoted the students' skills in learning. He further stressed that students can effectively and promptly communicate and share ideas and knowledge with other fellow students both home and abroad using emails. Students submit their assignment to the teacher by using email (Egunjobi, 2015).

Conclusion

This research determined the extent of utilization ICT devices for improving the teaching and learning of Agricultural Education. The data obtained and analysed shows that lecturers of Agricultural Education are moderately used ICT tools and devices. This situation has led to lack of adequate knowledge in the utilization of ICT by the students and teachers in teaching and learning process. This work collected data from the Agricultural Education lecturers in the tertiary institutions in Ebonyi State and the data analysis revealed that ICT devices such as the computer devices, audio-visual devices, internets devices and e-mail devices are moderately being utilized by the lecturers for improving the teaching and learning of Agricultural Education at the tertiary institution in Ebonyi State of Nigeria.

Recommendations

The following recommendations are made based on the findings:

1. The Ministry of Education of Ebonyi State should provide computers or subsidize the price of computer to the lecturers to enable them utilize it very well in teaching of Agricultural Education.
2. The Heads of tertiary institutions in Ebonyi State in conjunction with the Ministries of Education Ebonyi State should provide such devices like video, projects and power points to the schools so that teachers can use them for teaching.
3. The Ministry of Education in Ebonyi State should provide internet facilities in the tertiary institutions for the utilization of teachers and student for teaching and learning process

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