

Impact of Utilization of Information and Communication Technology in Teaching and Learning of animal husbandry in Senior Secondary Schools in Cross River State, Nigeria

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Abstract

Original Research Article

The study focuses on impact of utilization of information and communication technology in teaching and learning of animal husbandry in senior secondary schools in Cross River State, Nigeria. The study used descriptive survey research design. Three research questions were raised to guide the study. The population of the study was made up (20) teachers of agricultural education and two hundred students (200) making a total population of two hundred and twenty (220) from ten randomly selected schools with ICT facilities. The reliability of the instrument was through test-retest method. The results from the two tests were correlated and coefficient of 0.86 was obtained. The research questions answered was analyzed using mean score and standard deviation. Based on the findings of this study it was revealed that factors that hinders ICT skill acquisition by teachers and students of animal husbandry are lack of internet connectivity, insufficient numbers of computers and inadequate ICT personnel to assist both teachers and students in time of need. It was therefore recommended that use of ICT should be extended to non-teaching staff and junior secondary schools as the world is moving toward digital. From the findings the researcher concluded that: Information and communication technology in teaching and learning can only be impactful if there is adequate provision of computers, internet connectivity and teacher's students readiness to make used of it at when due.

Keywords: Impact of Utilization of ICT, Teaching and learning, Animal husbandry & Senior secondary schools.

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INTRODUCTION

Information and communication technology nowadays make communication between or among people easy and save time during communication. Information and communication technology broadly refers to a set of activities that facilitate-by electronic means- the capturing, storage, processing, transmission, and display of information [1]. The Challenge for most teachers, particularly in developing countries is changing their teaching in ways that accommodate the use of ICT [2]. Technology enhanced learning will play a crucial role in the development of a lifelong learning culture and has the capacity to empower learners by providing them with multiple pathways that offer choices and channel to meet their education and training needs [3].

As a means of meeting educational training need through the use of ICT, most developed countries such as UK, schools have embedded the use of ICT in

teaching and learning into the curriculum and demonstrate high level of effective and appropriate use to support teaching and learning Organization for Economic Cooperation and Development [4]. It is importance to note that those countries have integrated ICT into their education system because of its profound implications such as enabling teachers and students to construct rich multi-sensory, interactive environments with almost unlimited teaching and learning potential. According to Hakksrinan [5], computers and internet can be used to increase teachers' basic skills and subject mastery, to provide resources that can later be used in classroom, and to help teachers build familiarity with specific instructional approaches.

These approaches, have led to the rapid growth of the global economy and the information based society which has pressurized education systems round the world to use ICTs to teach the knowledge and skills they need in the 21st Century [6]. ICT tools used in teaching and learning process include radio, television,

visual aids, satellite system, computers and network. Globally, the Information and Communication Technology world has initiated a transition of emphasis from analogue education based technological development to that of digital knowledge based technological development in education through the process of teaching and learning [7].

Teaching involves the passing of information, skills, attitude from one person to another. Teaching takes place in both formal (school system) and informal (non-school system). The aim of teaching is to ensure that learning take place. Adeyemo and Oyetade [8] maintained that information in terms of agricultural activities is being passing from one generation to another through teaching. Teaching also involves an interaction between two parties. The first party is called the teacher who possesses some skills, competence and knowledge that are passed to another person. The second party is called a learner. Learner is an individual that receives knowledge, skills, and attitudes from a teacher. Learning has to do with behavior an individual displays after teaching had occurred. According to Amadi [9], the purpose of teaching is to cause change in the behavior of the learner. The change in behavior toward every activity is through the use of ICT in teaching and learning. Hence, agricultural education require total embrace of ICT.

According to Ekele [10], agricultural education as an aspect of vocational and technical education is a multi-task discipline that provides students with the required skills and knowledge to teach and become an entrepreneur in agribusiness. Agricultural education encompasses many study areas like agronomy, agric economics, animal science, soil science, crop protection, agricultural extension, rural sociology, plant science, agric engineering and forestry. One of the major aims of agricultural education is to apply the knowledge and skills learned in several different disciplines of agriculture to enhance entrepreneurship development [11]. On the contrary, many developing countries in Africa are living in a world of technological deficiency, that is, lack of access to knowledge that is learnt via the internet [4]. Considering the relationship between ICT utilization in teaching and learning process, one can see the importance of utilization of information and communication technology (ICT) in teaching and learning of animal husbandry in senior secondary schools in Cross River State, Nigeria. Given the proliferation of ICT usage among teachers and students in teaching and learning process of animal husbandry, motivated the researcher to undertake this study.

Statement of Problem

ICT are revolutionizing education by removing distance from education and making knowledge more accessible to all. It also has the potential to accelerate, enrich and deepen skills; motivate and engage students in learning; help to relate school experiences to work

practice, improving teaching method via easy access to reading materials. Despite the importance of ICT in teaching and learning, the emergence of modern technology has posed many challenges particularly in animal husbandry in areas of skills and its utilization for effective teaching and learning. Akawu [12], noted that most secondary schools in Nigeria have some computer equipment; only a fraction was equipped with basic ICT infrastructure necessary for teaching and learning of agricultural science. The researcher also observed that most of the secondary schools in cross river state have no adequate ICT facilities for teaching and learning particularly in animal husbandry. Perhaps the teachers and students lack the basic skills to operate and explore the effective teaching and learning process, as such they are reluctant in regular use of the available ICT facilities in teaching and learning. Therefore, the researcher sought to investigate impact of utilization of information and communication technology in teaching and learning of animal husbandry in senior secondary schools in Cross River State, Nigeria.

Purpose of the study

The main objective is to examine the impact of utilization of information and communication technology in teaching and learning of animal husbandry in senior secondary schools in Cross River State, specifically; the study examines:

1. Perceived influence of ICT tools on students in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State.
2. The extent at which teachers and students make use of ICT in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State.
3. Factors that hinder ICT skill acquisition by teachers and students of animal husbandry in senior secondary schools in Cross River State.

Research Questions

The following research questions were raise to guide the study:

1. What are the perceived influence of ICT tools on students in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State?
2. At what extent do teachers and students make use of ICT in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State?
3. What are the factors that hinders ICT skill acquisition by teachers and Students of animal husbandry in senior secondary schools in Cross River State?

METHODOLOGY

Descriptive survey research design was adopted for this study. According to Osuala [13] Survey design gives the accurate assessment of the characteristics of the whole populations of people. It is

also more realistic than the experimental in that it investigates phenomena in their natural setting. The population for this study consist of (20) teachers of agricultural education and two hundred students (200) making a total population of two hundred and twenty (220) from ten randomly selected schools in Cross River State. The population consists of both public and private schools that has ICT facilities. The numbers of private schools are three (3) which is made of eight agricultural education teachers and seventy (70) students while the public schools are seven (7) with twelve (12) agricultural education teachers and one hundred and thirty students respectively.

Both public and private schools (SS2) were randomly selected. For the purpose of the study the researcher developed self-structured questionnaire as the instrument for data collection which made up of questions arranged systematically based on research questions to obtained data and information from respondents of agricultural science (teachers and students) in the study area.

The instrument used for this study was vetted by senior lecturers in the Department of Agricultural education and measurement and evaluation, Federal University of Agriculture, Benue State. This is to determine the face and content validity of the instruments. However, all necessary corrections and modifications were made by the same lecturers in the department of agricultural education and measurement and evaluation. Research statement (s) was reconstructed based on the satisfactory comments of the experts in the field of measurement. The reliability of the instruments was determined through a trial testing

conducted in two secondary schools that were not part of the study area. The reliability of the instrument was through test- retest method in two secondary schools that are not part of the study. The results from the two tests were correlated and coefficient of 0.86 was obtained meaning that the instruments were reliable.

The researcher administers the instruments (questionnaire) to the subject or respondents personally with the help of two research assistance. A total of two hundred and twenty (220) copies of questionnaires administered to the teachers and students of Agric education and retrieved for analysis. Data were analyzed using mean score. The mean score was computed for calculated 'Strongly agree' and 'Agree' statements (that is, 'Strongly agree' represent 'Agree' statements, while 'Strongly Disagree and Disagree' represented 'Disagree' statements. The mean score was calculated from the responses of the respondents to the items on four-point rating scale. The rating scale techniques were used because according to Agbamu [14], it will enable the respondents to indicate the degree of their opinions in a given statement. In answering the research question any item with a mean score of 2.5 and above is considered agreed while any item with mean score of less than 2.5 will be considered disagreed.

RESULTS

Research Question One: What are the perceived influence of ICT tools on students in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State?

Table-1: Mean rating and Standard Deviation on the perceived influence of ICT tools on students in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River

S/N	What are the perceived influence of ICT tools on students in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State?	Mean	SD	Decision
1	ICT tool such as interactive white board help to improve teaching and learning,	2.14	.870	Disagree
2	Desktop and laptop make teaching and learning more attractive.	2.35	.940	Disagree
3	The satellite system in school also encouraged students and teachers to become members of local and extended community of learning.	2.52	1.00	Agree
4	ICT tool such as printer help to improve teaching and learning.	2.07	1.18	Disagree
5	The use of ICT will help to ensure that students develop competence, confidence, and critical awareness in the field of study.	2.81	.990	Agree
6	ICT tool such as video game improve students understanding of the course content.	2.46	.833	Disagree
7	Tablets use in sorting the net assist students and teacher in critical thinking.	2.41	.872	Disagree
8	Integration of ICT in teaching and learning activities facilitate both individual and collaborative work.	2.50	.795	Agree
9	Internet facilities enable students and teachers to source for information related to their field of study.	3.27	.531	Agree
10	Computer managed instruction in the ICT room helps to organize and deliver classroom instruction easily.	2.56	1.069	Agree
11	The computer assisted learning which is used for edutainment in the ICT room aids understanding of the concept taught.	2.62	.670	Agree
12	Using ICT in teaching and learning is a goal in our school.	1.97	.652	Disagree

Result in Table-1 indicated that the six items (3, 5, 8, 9, 10 and 11) score above the mean of 2.50. This implies that the Six ICT tools have influence in teaching and learning of animal husbandry. While the other six items (1, 2, 4, 6, 7 and 12) scored below the criterion mean of 2.50.

Table-2: Mean rating and Standard Deviation on the extent at which teachers and students make use of ICT in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State

S/N	Extent at which teachers and students make use of ICT in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State?	Mean	SD	Decision
1	Multimedia computer system is rarely used for teaching and learning.	2.24	.656	Disagree
2	We used multimedia computer system for teaching and learning at least thrice a week.	3.16	1.063	Agree
3	Computer projectors are mostly used for teaching and learning and making presentation when the need arises.	2.55	1.00	Agree
4	Multimedia systems such as large screen TV are used for practical illustration of some concepts during teaching and learning regularly.	2.51	1.05	Agree
5	Multimedia such as internet facilities are used for sourcing information that are relevant to teaching & learning when it is time to do so.	2.57	1.06	Agree
6	Multimedia ICT room where computer managed instruction used to organize and deliver classroom instruction are accessible at least thrice a week.	2.54	.862	Agree
7	Multimedia computer aided instruction for presentation of practices, exercise and tutorial sequence in the ICT room is allowed to be used by teachers & students at all time.	2.65	.907	Agree

Table-2 result shows that all the multimedia ICT facilities are use in teaching and learning of animal husbandry in the study area with scores 2.50 and above as cut-up point indicated on the table above except for question one that scored below 2.50.

Research Question Two: At what extent do teachers and students make use of ICT in enhancing teaching and learning of animal husbandry in senior secondary schools in Cross River State?

Table-3: Mean rating and Standard Deviation on factors that hinder ICT skill acquisition by teachers and students of animal husbandry in senior secondary schools in Cross River State

S/N	What are the factor that hinders ICT skill acquisition by teachers and students of animal husbandry in senior secondary schools in Cross River State?	Mean	SD	Decision
1	Lack of internet connectivity	2.56	.752	Agree
2	Lack of content in national language	2.05	.770	Disagree
3	Most parents not in favor of using ICT in school	1.97	.771	Disagree
4	Insufficient number of computers	2.56	.552	Agree
5	Lack of interest by teachers and students	2.14	.870	Disagree
6	Lack of content/material for teaching	2.33	1.223	Disagree
7	Inadequate ICT personnel to assist both teachers and students in time of need.	3.30	.637	Agree
8	No or unclear benefit to use ICT for teaching.	2.02	.864	Disagree

Data in Table-3 shows that three factors hinder ICT skill acquisition by teachers and students of animal husbandry as seen on the table above with a bench mark less than 2.50 while the remaining five factors score below the cut- up point of 2.50 to indicate that ICT skill acquisition by students and teachers are not hindered in the study area.

DISCUSSION OF THE FINDINGS

Table-1 result shows that ICT tools use in teaching and learning of animal husbandry have influence in teachers and students in senior secondary

Research Question Three: What are the factors that hinder ICT skill acquisition by teachers and students of animal husbandry in senior secondary schools in Cross River State?

schools in Cross River State but tool such as tablets in sorting the net reduced the thinking ability of the students in solving a particular problem. In response to this, Watson [15], Eriba and Adejoh [16], added other ICT tool such as video game does not encourage student academic performance rather create an avenue students are busy doing nothing. In other hand the influence of ICT tools in promoting teaching and learning among teachers and students are un exhorted [17]. This is in line with the study of Ezeoba [18], Idoko and Ademu [19], who added that the influence of ICT into the education made the National policy on

Education (2004) to accommodate the introduction of ICT at all level of school system in keeping with the dynamics of social change and it demand on education.

The result of Table-2 indicated that respondents always make use of ICT facilities in teaching and learning of animal husbandry when the need arises. The present research work agrees with the finding of Jhurre [20], who argued that, education reform is occurring throughout the world and one of its objectives is the introduction and integration of ICT in the education system. In addition Ministries of education and higher institution around the world have made commitment to computerize schools and provide pedagogical tools in the classroom [21]. He further opine that, institution have now understood that connecting schools with ICT and allowing students to make regular use of the ICT facilities has made learning faster and real.

Table-3 shows that three factors hinders ICT skill acquisition by teachers and students of animal husbandry which lack of internet connectivity, insufficient numbers of computers and inadequate ICT personnel to assist both teachers and students in time of need. This is in line with the study of Ezeoba [18], Idoko and adamu [19], who also found that, ICT resources were not adequately available in Nigeria institutions. Petrogiannis [22], opine that there is inadequate internet connectivity in African Secondary institutions because it is expensive to install as such, school owners and government pay less attention to such areas.

In response to this, Watson [15], Eriba and Adejoh [16], added that, inadequate availability of computers has often been one of the most important obstacles to technology adoption and integration in Nigerian institutions which need urgent attention to make learning easier and accessible to all

CONCLUSION

Information and communication technology in teaching and learning can only be impactful if there is adequate provision of computers, internet connectivity and students readiness to make use of it at when due. From the findings from the study revealed that ICT tools have influence on teaching and learning of animal husbandry in the study area but it should be monitored to prevent students from using it in a negative way. The used of ICT by teacher and students in teaching and learning of animal husbandry call for more provision of these facilities as a means of encouraging them. Finally, lack of internet connectivity, insufficient computers and inadequate ICT personnel to assists both the teachers and students may hinder students and teachers knowledge on ICT skills.

RECOMMENDATIONS

Base on the findings of the study the researcher made the following recommendations:

- They should be a control measure through which ICT tools are used to prevent negative influence.
- The use of ICT should be extended to non-teaching staff and junior secondary schools as the world is moving toward digital.
- Government and proprietors of secondary schools should make provision for internet connectivity, supply of more computers and ICT personnel to encourage the developments of ICT skill among teachers and students.

REFERENCE

- Sobieh A. ICT and Enterprise Development Sustainable Development Association. Egypt: Alexandria. 2011
- Agbetuyi PA, Oluwatayo JA. Information and communication Technology (ICT) in Nigeria educational system. *Mediterra? Learn Journal of Social Science*. 2012; 3(3).
- Human Resource Development Canada. Updating essential skills for the workplace. Reference document coordinated for the council of Ministers of education, Canada, Third National Forum on Education: Education and Life-transitions, St, John's, Newfoundland. 1998.
- OECD. 'Are students ready for a technology rich world? What PISA studies tell us', France: OECD. 2004. Accessed at: http://www.oecd.org/dataoecd/10/5/35995145/pdf_
- Hakkssinen K. Teachers Information Communication Technology Skills and Practices of using ICT. *Journal of Technology and Teacher Education*. 2012.
- World Bank. Contributions of ICTs in Economic Growth. Washington DC: The World Bank Institute. 2004.
- Adawu SE, Iyamu EOS. Curriculum Implementation in Nigeria, a switch to radical Pedagogy. *Nigerian Journal of Curriculum Studies*. 2014; 12(1):92-108.
- Adeyemi SB, Oyetade EM. Grassroots Home Development Strategies. *African Journal of Historical Sciences in Education*. 2010; 6(2):218.
- Amadi MN. Training and teaching Pedagogy in Open and Distance Education. *Nigerian journal of Professional Teachers*. 2013; 3(2):202.
- Ekele EG. The Making of Agricultural Education. Selfers Academic Press Limited, makurdi, Benue State. 2019.
- Williams DL. 'Focusing agricultural education research, strategies for the discipline'. *Journal of Agricultural Education*. 2011; 32(1):7-12.
- Akawu AB. Educational Communication technology media and utilization. University of Calabar printing press. 2010.

13. Osuala EC. Introduction to research methodology (3th ed.) pp.218-235- African - Fep publishers limited. 2005; 321.
14. Agbamu TP. Restructuring Business Teachers Education through Information and Communication Technology Driven Curriculum. *Business Education Journal*. 2005; 4(1):10-17.
15. Watson DM. Pedagogy before technology: Pethinking the relationship between ICT and teaching. *Journal of Education and information technologies*. 2001;6(4):257-266.
16. Eriba JO, Adejoh MT. Information and communication technology in science education. *Journal of Emerging Trends in Educational Research and policy Studies (JETERAPS)*. 2004; 1(1):1-9.
17. Obonyo SO. Use of information communication technology in teaching and learning processes in secondary schools in rachuonyo south district, homa-bay county, kenya. M.sc degree thesis University of Nairobi. 2013.
18. Ezeoba KO. Instructional media. An assessment of the availability, utilization and production by nursery school teachers. *Journal of Applied Literacy and Reading*. 3 (Special Edition). 2007; 33-38.
19. Idoko JA, Ademu A. The challenges of information and communication technology for teaching – learning as perceived by agricultural science teachers in secondary schools in Kogi state. *Journal of Educational Innovators*. 2010; 3(2):43-49.
20. Jhuree O. Technology Integration in Education Developing Countries: Guidelines for policy Makers. *International Education Journal*. 2011; 6(4):467-483.
21. Shalini TR. Is ICT more than a learning tool in Mauritian education reform? Proceeding of the 2007 computer Science and IT Education Conference. 2007.
22. Petrogiannis K. The relationship between perceived preparedness for computer use and other psychological construct among Kindergarten teachers with and without computers experience in Greece. 2010.