Strategies for Improving the use of Electronic Teaching and Learning(E-Learning) for Vocational Education in Tertiary Institutions of Anambra State-Nigeria

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Abstract The paper identified the strategies for improving the use of electronic teaching and learning of vocational education courses(agricultural science and home economics) in tertiary institutions of Anambra State. Simple random sampling was used in selecting 30 lecturers and 150 students of agricultural science and Home Economics education. The questionnaire was the instrument used for data collection. The data collected were analysed using mean and frequency counts. The findings of the study revealed that most schools lacks some of the e-learning devices and the problems facing the use of e-learning network in teaching includes poor power supply, financial problems, low computer literacy level, low quality and expensive nature of VAST connections etc. The strategies that could be adopted to improve the use of electronic teaching and learning includes amongst others training of teachers in ICT, allocation of more fund for e-learning, schools to source out fund, and telephone lines to be digitalized.

Introduction

Electronic teaching and learning represents the latest innovation in education delivery system. It offers flexibility in space and time teaching on-line involves use of the world wide web. An instructor has to develop a course syllabus, develop goals and objective, select quality textbooks and journal article readings, create learning exercises and develop quiz and examinations. The instructor should have assistance with all of the software required to deliver on-line courses. Some sites on the web offer photo essays, documents, articles and recordings. These provide raw materials with which you can fashion a focused and relevant assignment for discussion (Ko & Rosen, 2004). They further stated that discussion forums are essential for creating meaningful interactions among students and between Jegede (2005) described electronic learning as the presentation and delivery of the materials using the electronic media. Also Ajayi, (2005) defines e-learning and learning through electronic means such as via the web, internet or other multimedia materials like computer, projector, television, audio and audio visual cassette, radio disc e.t.c, the learner whether for or near have easy access to quality learning materials have robust and unlimited interaction with instructional contents, facilitators and other learners and are given support and appropriate time, make reasonable and responsible contributions to the learning process.

To design and deliver on-line course instructors require a thorough knowledge of the main components of on-line teaching and learning. Khan (1997) identifies the critical components of online education; content development multimedia component, internet tools, computers and storage devices service providers, authoring programs, servers, browsers and other applications Abidoye (2010) identifies the following learning devices as effective communication tools in teaching and learning

1. Multi-media device – multimedia is in form of streamline audio video, screen images, and three dimensional graphics which can drastically enhance e-learning
2. Web based training (WBT). This is an on-line learning platform containing communication and course management tools on an intranet or internet.
3. Synchronous internet communication (SIC). This includes things like charts, video conferencing via the internet and voice charts.

4. Hybrids: These are any combinations of synchronous internet communication (SIC) and web based training (WBT) with classical classroom training or hybrids make personal contact between participants and instructors or teachers

The instructors or teachers must have a clear understanding of learning and instructional theories to create the content and developed components of online courses. They must also have a thorough understanding of instructional design and curriculum development theories. This would include knowledge of instructional systems design, process analysis design, development, implementation and evaluation, cognitive learning theories and constructivism.

Statement of Problem

Good educational policies are backed with well designed programs which for part of adequate political will on the part of government and educational institution authorities are ineffectively and inefficiently implemented. Thus has led to learners not being adequately exposed to those experiences that will guarantee the total development of their being. At present we leave in a global village. Around the globe the latest and most complex technology is the area of information and communication technology. The growth in on-line technology and its application in education have brought great transformation in the world. The use of ICT gadget has made teaching and learning less burdensome effective and result oriented by providing cyberspace for learning, avenue for sharing idea and information. The level of development in any society is usually determined by the quality and quantity of knowledge in the various spheres of human activity available to and acquired by the citizens.

Knowledge is acquired and sustained through efficient information and communication system based on the technology level attained, children in any country who fail to use and master new technologies would definitely lack behind. However, there are many constraints in delivering the ICT to the right people at the right time. In developing countries like Nigeria, there is frequently a shortage of qualified ICT teachers, and lack of fund. The rapid changes that have taken place all over the world poses a challenge to the educational sector. There is the need to enrich the present tertiary institutions which ICT program for effective teaching and process.

Purpose of the Study

The aim of the study is to identify the strategies for improving the use of electronic teaching and learning in agric science and home economics in tertiary institutions of Anambra State.

Specifically the study intends to find out

1. The E-learning devices that are available for the teaching of agric science and Home economics in tertiary institutions of Anambra State.
2. The role of e-learning network in teaching and learning of agric science and Home economics.
3. The problems facing the use of e-learning network in teaching and learning of agric science and Home economics education.
4. Strategies for improving the use of electronic teaching and learning in agric science and home economics.

Significance of the Study

The result of the study would be of immense benefits to the government. The results of the study would show the devices that are lacking in these institutions so that the government would supply them to the schools. Schools now will increasingly use ICTs to reduce the cost and improve the efficiency of administration. The

quality of education will be raised since routine repetitive tasks can be automated with the use of ICT infrastructure.

Through equipping the schools with ICT devices, the learners will have access to a wide range of information resources. This will also enable the teacher to manage a large class effectively and makes the tasks of teaching simplified.

Research Questions

The following research questions were posed to guide the study

1. What are the e-learning devices available for the teaching and agric science and Home economics in tertiary institutions of Anambra State?
2. What roles do e-learning network play in the teaching of agric science and Home economics in tertiary institutions of Anambra State?
3. What are the problems facing the use of e-learning network in the teaching of agric science and home economics in tertiary institutions of Anambra State?
4. What strategies could be adopted to improve the use of electronic teaching and learning in agric science and Home economics?

Population

The population of the study comprised all the agricultural science and home economics students and lectures in the tertiary institutions of Anambra stat that offer agric science and home economics education.(Federal College of Education (Tech) Umunze and Nwafor Orizu College of Education Nsugbe).

The population were as follows:

	Lecturers	Students
Agric science	29	79
Home economics	21	104
Total	50	183

Source: Statistics unit: NOCEN and F.C.E.(T) Umunze)

Sample and sampling techniques

Simple random sampling was used in selecting 15 lecturers each from agric science and Home economics. Also random sampling was used in selecting 75 each of agric science and home economics students. Thus the sample size become 30 lecturers and 150 students making it a total of 180 respondents.

Instrument For Data Collection

The instrument for data collection was questionnaire which sought the view of the respondents on the strategies for improving the use of e-learning in agric science and home economics education.
A four point scale strongly agree (SA), Agree (A), disagree (D) and strongly disagree (SD) was used to elicit information from the respondents.

Validation of the Instrument

The instrument was validated by processing to two experts each in agricultural education and home economics 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.

Reliability of the Instrument

To determine the reliability of the instrument, copies of the questionnaire was given to the agricultural science and home economics students in tertiary institution of Abia State after which the data collected was computed using crombach alpha. An internal consistence of 0.82 was obtained for the instrument.

Method of Data Analysis

The data collected were analysed using mean. The mean was calculated by assigning nominal value to the response categories-strongly agree (SA) 4, agree (A) 3, disagree (D) 2 and strongly disagree (SD) 1.
The main then is

$$\frac{4 + 3 + 2 + 1}{4} = \frac{10}{4} = 2.5$$

Using an interval scale of 0.5 was added to the mean to give 3.00. Any response of 3 and above is regarded as agreed while response rating less than 3.00 is regarded as disagree.

RESULTS

Table 1: Mean responses of respondents on E-learning devices available for the teaching and learning of agric science and home economics.

S.N	ITEMS	SA	A	D	SD	N	$\bar{X}$	DECISION
1.	Web based training	-	-	-	180	180	1.00	Disagree
2.	Synchronous internet	-	-	80	100	100	1.44	Disagree
3.	Communication (SIC)	90	90	-	-	180	3.50	Agreed
4.	Audio-video	95	85	-	-	180	3.53	Agreed
5.	3 dimensional	-	-	-	180	180	1.00	Disagree
6.	Internet	180	-	-	-	180	4.00	Agreed
7.	Computers	180	-	-	-	180	4.00	Agree
8.	Projector	80	100	-	-	180	3.44	Agree

Items 1, 2 and 5 had mean values below the cut-off point of 3.00 and was disagreed by the students while the other items had mean values above the cut-off point of 3.00 and was agreed by the respondents

Table 2: mean responses of respondents on the role of e-learning network in the teaching of agricultural science and home economics.

S.N	ITEMS	SA	A	D	SD	N	$\bar{X}$	DECISION
1.	Help teachers to demonstrate experiments and concepts	80	100	-	-	180	3.44	Agreed
2.	Cover a large number of people spread over a wide area	85	85	10	10	180	3.31	Agreed
3.	e-learning is cost effective	180	-	-	-	180	4.00	Agreed

4.	Provides opportunity for individualization of learning	90	90	-	-	180	3.5	Agreed
5.	Offers a greater variety of learning resources	180	-	-	-	180	4.00	Agreed
6.	Creates greater opportunity for interactive learning	95	85	-	-	180	3.53	Agreed
7.	Raises the overate quality of education	180	-	-	-	180	4.0	Agreed
8.	Provision of access to unlimited information from different sources	160	20	-	-	180	3.88	Agreed

All the items in table above had mean values above the cut-off point of 3.00 and were agreed by the respondents.

Table 3: mean responses of respondents on the problems facing the use of e-learning network in teaching agric science and home economics.

S.N	ITEMS	SA	A	D	SD	N	X	DECISION
1.	Poor power supply	140	40	-	-	180	3.78	Agreed
2.	Financial problem	120	60	-	-	180	3.67	Agreed
3.	Inability to sustain the use of e-learning network	180	-	-	-	180	4.00	Agreed
4.	Low computer literacy level of teachers	150	30	-	-	180	3.83	Agreed
5.	Low computer literacy level of students	140	40	-	-	180	3.78	Agreed
6.	Inability of the government to support intensive use of e-learning network for teaching and learning	170	10	-	-	180	3.94	Agreed
7.	Quality assurance i.e finding and fixing errors before the e-learning predict is used	130	50	-	-	180	3.72	Agreed
8.	Low quality and expensive nature of VSAT connections	80	100	-	-	180	3.44	Agreed

All the items in table 3 above had mean values above cut-off point of 3.00 showing that the respondents agreed in all the items.

Table 4: Mean ratings on the strategies to be adopted to improve the use of e-lear

S.N	ITEMS	SA	A	D	SD	N	X	DECISION
1.	Training of teaches in ICT	180	-	-	-	180	4.00	Agreed
2.	Government to allocate more fund for implementation of e-learning	110	70	-	-	180	3.61	Agreed
3.	Problem of erratic power supply to be addressed	180	-	-	-	180	4.00	Agreed
4.	Workshops to be organized for teachers students on ICT	135	45	-	-	180	3.75	Agreed
5.	Adequate employment of ICT teachers in schools	80	100	-	-	180	3.44	Agreed
6.	Schools to source out funds for their ICT centres	95	85	-	-	180	3.53	Agreed
7.	Telephone line to be digitalized so that people will get connected to internets	90	90	-	-	180	3.50	Agreed

All the items had mean values above the cut-off point of 3.00 and was agreed by the respondents.

Discussion

Results in table 1 showed that schools offering agriculture and home economics education in Anambra state have some of e-learning devices such as audio video, 3 dimensional graphics, internet, computers and projectors while others like synchronous internet, web based training, screen images etc are lacking. The findings are in line with what Onyeahu (2009) found out that computer and other ICT facilities are expensive to purchase and as such not all school can offered the purchase of ICT facilities.

Also, Ajayi (2002) observed that most of our educational outlets are not yet computerized and therefore the professionals do not have access to the different information and communication technologies. The reason being the poverty level affecting the schools.

Research question 2 seeks to find out the role of e-learning network in the teaching of agricultural science and home economics

Results revealed that e-learning networks helps teachers demonstrate experiments and concepts, cover a large number of people, provides opportunity for individualization, offers a great variety of learning resources, creates a greater opportunities for interactive learning, raises the overall quality of education and provides access to unlimited information from different sources. Okoroh (2006) observes that ICT facilities do not only help students but they also assist teachers in the preparation of teaching materials demonstration of equipments and concept.

Research question 3 was designed to find out the problems facing the use of e-learning network in teaching and learning of agricultural science and home economics education. Results revealed that such problems as finance poor power supply, computer literacy level, poor support from governments quality assurance, low quality and expensive nature of VSAT connections affect the use of e-learning. That is why Ozoji (2003) stated that lack of fund affects the use of ICT in teaching as many schools lack ICT materials even those that have them cannot properly maintain them due to lack of money.

Results in table 4 revealed that strategies to be adopted to improve the use of e-learning in teaching includes training of teachers in ICT, government to allocate fund to ICT, problem of poor power supply to be addressed, schools to source out funds and telephone lines to be digitalized. In his write up Okereke (2009) stated that there is a compelling need for training and retraining of teachers in the effective use of information and communication technology.

Recommendations

Based on the findings, the following are recommended

1. Provision of ICT infrastructure to schools by the government
2. Efforts should be put to ensure a continuous steady supply of electricity
3. Seminars, workshops, conferences to be organized for pre-service and in-service teachers
4. Adequate fund should be allocated for the development of ICTs in schools.

Conclusion

The rapid changes that have taken place all over the world poses a challenge to the educational sector. There is the need to use e-learning in teaching and learning in schools as this will enhance and complement learning and teaching of agric science and home economics.

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