



Management of E-Learning Facilities for Effective Instructional Process in Tertiary Institutions, Rivers State

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ABSTRACT

The study evaluated the management of e-learning facilities for effective instructional process in tertiary institutions in Rivers State, Nigeria. The study was guided by two research objectives, two research questions and one hypothesis. The study sought to compare the managed e-learning facilities in Federal Government tertiary institutions with their state counterparts; and to ascertain the solutions to the problems militating against the management of e-learning facilities in the tertiary institutions. The design adopted for this study is descriptive survey design and was conducted in Port Harcourt in Rivers State. The population of this study comprised of all lectures and students of the tertiary in institutions in Rivers State. The instrument for data collection was a set of structured questionnaire titled Availability of E-Learning Facilities for Effective Instructional Process in Tertiary Institutions (AEFEIPTI). Data derived from the field were analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0. and statistical tools such as mean and standard deviation were used to analyse the research questions, while z-test was used to test the hypothesis at 0.05 level of significance. Findings from the study showed that there is no significant difference between federal and state rating regarding on the managed e-learning facilities in tertiary institutions ($z\text{-cal} = 1.14$, $z\text{-crit} = 1.96$; $df 769$). Based on the findings of the study, it was recommended that universities should upgrade her website or launch a website which lecturers and students can use to disseminate or access information. Such website should enable lecturers to upload their course materials, amongst others.

Keywords: Management, E-Learning, Instructional process, Tertiary institution

INTRODUCTION

Globally, the tertiary education sector has been greatly impacted by technological development as the integration of e-learning facilities has helped in making the learning process more efficient, effective and convenient. "E-learning is the use of electronic media, educational technology and information and communication technologies (ICT) in education" (OECD, 2003). E-learning includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the Internet in networked learning, underlie many e-learning processes. So, in a system, where there is a management of e-learning facilities and these facilities are actually utilized to enhance teaching and learning, then the term management of e-learning comes into fruition. Hence, availability, functionality and utilization of e-learning are pivotal to the management of e-learning facilities in instructional processes.

E-learning has been described as one of the educational challenges of the modern age about which progressive academic institutions must make bold efforts to excel and compete favourably in the global market where education is a commodity. Current achievements in the field of computer and communication technologies have offered tremendous opportunities for learning by electronic means (Rozina, 2002). The use of new multimedia technologies and the Internet in learning is seen as a means to improve accessibility, efficiency and quality of learning by facilitating access to information resources and services as well as remote exchanges and collaboration. Nonetheless, by the middle of the 20th century the growth in technology and applications even in the field of education became unavoidable to be ignored. According to Abimbade (2005), the world of technology continued to grow and today the whole world has become a global village. By the beginning of the 21st millennium educational technology has stretched educational boundaries and created new ones on a daily basis. One of these new and rapidly expanding boundaries is e-learning which is offering tremendous advantage to education sector. E-learning has become a new paradigm and a new philosophy in library' services as well as educational sector with a mission to serve as a development platform for present-day society based on knowledge.

Management of e-learning facilities has been a challenging issue, however, in most institutions of higher learning in Rivers State. This hampers the use of e-learning.

Nigeria has a number of initiatives such as:

-National Policy on Computer Education

-National Policy on Information Technology

All these initiatives are meant to enhance rapid growth and development of ICT in the field of education. A great deal of research has proven the benefits to the quality of education.

In the classrooms, instructional technologies must serve as a vehicle to help lecturers deliver a variety of learning opportunities to students in the various subject areas. The use of instructional technologies will improve the delivery of instructions and provide opportunity for students to access and learn new information, manage information- based content objective and communicate what has been learnt to others.

Real learning according to Obanyi (1985) goes through two states viz.

- ❖ The acquisition of information that has been obtained
- ❖ The recall of information that has been retained.

The performance of learning is ensured through retention and recall and this can be achieved more easily by the effective management of instructional technologies of e-learning.

Gunawardana (2005) highlights that studies in e-learning have shown that most programmes are likely to succeed with the constant involvement of the facilitator through e-mail discussion lists and individualized messages.

Statement of the Problem

The aim of this study is to verify the integration of e-learning facilities for effective instructional process in tertiary institutions in Rivers State, Nigeria. E-learning can only be implemented when there is management of e-learning facilities.

Although, almost all the institutions have established ICT centres, none has fully complied with e-learning technologies in their teaching and learning processes. Only Rivers State University of Science and Technology, University Port Harcourt and Ignatius University of Education have been practicing e-learning, in terms of dissemination of information, enrollment of admission, registration of courses, payment of school fees and publication of results which is a supplementary aspect of e-learning. Students could be given web-based assignments and could possibly be asked to gadget the solution in a storage media such as CD-Plate or flash drive and then submit to the lecturers concerned or make presentations in a PowerPoint package. Web-Based teaching and learning is not fully implemented by both lecturers and students. What is the rate of management of e-learning facilities to both lecturers and students? Many students and staff decried the paucity of e-learning facilities in these institutions. Students and staff are unable to use the available ICT facilities due to lack of exposure in spite of the cyber charter centres and ICT libraries. They lamented the lack of opportunity for training with the few facilities on ground. Many

lecturers and students in both Federal and State tertiary institutions go to commercial cyber cafés to have access to computer and internet. Management of e-learning facilities remain challenging issues in Port Harcourt tertiary institutions.

Purpose of the Study

The purpose of this study is to investigate the management of e-learning facilities for effective instructional process in tertiary institutions, Rivers State.

Specifically, the objectives of this study are to:

1. Compare the managed e-learning facilities in Federal Government tertiary institutions with their state counterparts.
2. Determine the solutions to the problems militating against the management of e-learning facilities in the tertiary institutions.

Research Questions

The following research questions were raised to guide the study:

1. Are federal government tertiary institutions better equipped with e-learning facilities than their state counterparts?
2. What are the solutions to the problems of management of e-learning facilities in Rivers State tertiary institutions?

Hypotheses

The null hypothesis stated below were tested at 0.05 level of significance to guide the study:

HOI: There is no significant difference between the mean responses of the managed e-learning facilities in the Federal Government tertiary institutions than their State counterpart.

Significance of the Study

The result of this study will be of great benefit in diverse ways. It will help the Government, educational administrators, lecturers, staff and students to acknowledge the roles and the importance of e-learning, to be challenged and directly involved in the management of e-learning facilities for both teaching learning.

Scope / Delimitation of the Study

This study covers all the tertiary institutions in Rivers State which include the following:

1. University of Port Harcourt - Federal
2. Rivers State University formerly known as Rivers State University of Science/Technology
3. Ignatius Ajuru University of Education - State
4. Elechi Amadi Polytechnic State
5. Rivers State College of Health and Technology

In this study, the estimated number of lecturers and students as given by the various institutions were stated and used as population size including the various faculties and departments of these institutions.

Conceptual Framework

Concept of E-Learning

E-learning as a concept covers a range of applications, learning methods and processes (Rossi, 2009). It is therefore difficult to find a commonly accepted definition for the term e-learning and according to Oblinger and Hawkins (2005) and Dublin (2003), there is even no common definition for the term. Some of the definitions of the term e-learning as given by different researchers and institutions are reviewed below. In some definitions e-Learning encompasses more than just the offering of wholly on-line courses. For instance Oblinger and Hawkins (2005) noted that e-Learning has transformed from a fully-online course to using technology to deliver part or all of a course independent of permanent time and place.

E-learning refers to the use of information and communications technology (ICT) to enhance and/or support learning in tertiary education (OECD 2005). What then is ICT? Information and communication technology is another/extensional term for information technology which stresses the role of unified communications and the integration of telecommunications, computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information. According to Adeya (2002), ICTs are embedded in networks and services that affect the local and global accumulation and the flow of public and private knowledge. It is an

electronic means of capturing, processing storing and disseminating information. Therefore, it refers to those technologies that determine the efficiency and effectiveness with which we communicate and the devices that allow us to handle information in the teaching and learning processes which is one of the functions of e-learning.

But this covers a wide range of systems, from students using e-mail and accessing course work on line while following a course on campus to programmes offered entirely online.

Information Communication Technology (ICT) and E-Learning

Information Communication Technology (ICT) refers to the totality of methods and tools that are used in gathering, storing, processing and communicating information. ICT has found application in virtually all the available professions in the world. Professionals in different fields called it by different names. When ICT is used in education or to foster learning, it is called E-learning Technology or Educational Technology. In the broadcasting profession where ICT is used as a communication tool, it is commonly referred to as Electronics Information Technology or just Communication Technology. A careful consideration of the meaning and scope of ICT makes it easy to think that hardly can any profession survive or continue to be relevant without the integration of ICT. ICT encompasses all the technologies used to transmit or disseminate information to an audience.

Advantage and Disadvantage of E-Learning in Tertiary Institutions

Advantages of E-learning: The adoption of E-learning in education, especially for higher educational institutions has several benefits, and given its several advantages and benefits, e-learning is considered among the best methods of education. Some of the advantages that the adoption of e-learning in education, obtained from review of literature includes the following:

1. It is flexible when issues of time and place are taken into consideration. Every student has the luxury of choosing the place and time that suits him/her. According to Smedley (2010), the adoption of e-learning provides the institutions as well as their students or learners the much flexibility of time and place of delivery or receipt of according to learning information.
2. E-learning enhances the efficacy of knowledge and qualifications via ease of access to a huge amount of information.
3. It is able to provide opportunities for relations between learners by the use of discussion forums. Through this, e-learning helps eliminate barriers that have the potential of hindering participation including the fear of talking to other learners. E-learning motivates students to interact with other, as well as exchange and respect different point of views. E-learning eases communication and also improves the relationships that sustain learning. Wagner et al (2008) note that e-Learning makes available extra prospects for interactivity between students and teachers during content delivery.

Disadvantages of E-learning in Tertiary Institutions: E-learning, in spite of the advantages that it has when adopted in education, also has some disadvantages. The disadvantages of e-learning that have been given by studies include the following:

1. E-learning as a method of education makes the learners undergo contemplation, remoteness, as well as lack of interaction or relation. It therefore requires a very strong inspiration as well as skills with to the management of time in order to reduce such effects.
2. With respect to clarifications, offer of explanations, as well as interpretations, the e-learning method might be less effective that the traditional method of learning. The learning process is much easier with the use of the face to face encounter with the instructors or teachers.
3. When it comes to improvement in communication skills of learners, e-learning as a method might have a negative effect. The learners, though might have an excellent knowledge in academics, they may not possess the needed skills to deliver their acquired knowledge to others.

Empirical Review

E-Learning Integration in Tertiary Education

Universities are now thinking through and negotiating the potential contribution of e-learning to their organizational future. For some institutions, and in some countries, key barriers remain. Infrastructure and

funding are among the important ones, but skepticism about the pedagogic value of e-learning and staff development are probably the most challenging. Institutions are grappling with bringing use and funding of e-learning into the mainstream of their organization, and are beginning to contemplate restructuring to take account of e-learning, in terms of staffing, staff development, course design and students' support (OECD 2005).

All institutions acknowledged the need to recruit a broader range of staff, such as technological experts, to complement academic staff. Another challenge is persuading current faculty members to use and develop e-learning. The general concept of "staff development" is widely seen as key to sustainable e-learning in tertiary education. Institutions are struggling with the division of labour between faculty members and "new" staff focused on the technical aspects of e-learning. For most institutions, meeting these day-to-day campus-based challenges of e-learning is far more important, at least for the moment, than the commercialization and internationalization of e-learning.

Partnerships are a key characteristic of e-learning that could help institutions to share knowledge, and good practices, and achieve benefits such as advanced technology and educational quality in addition to enhanced market presence and lower costs. Some institutions are already involved in partnerships covering activities such as e-learning infrastructure; learning management systems and applications; creating e-learning materials; developing joint programmes; joint-marketing; collaborating for research; sharing best practices; and sharing costs of hardware and software. Tertiary education institutions see minimal or short-term value in outsourcing activity and rarely give strategic attention to making learning materials available to third parties.

Theoretical Framework

Design Theory of Blended Learning

Designed by Huang et al (2007), the Design Theory of Blended Learning tries to explain how different types of learning including face-to-face and computer aided forms of learning can be used together for better performance. They argue that blended learning can be achieved if there is a well-designed curriculum showing the various activities involved in the learning process. In A framework for the integration of e-learning of this theory, the proponents suggest various factors that influence the success of blended learning as flexibility, whereby a number of tools such as discussion forums, e-mails and boards are used to enhance learning. In addition, the authors argue that technology-based-learning allows learners to undergo self-paced learning and monitor themselves without the direct supervision of the teacher. Therefore learners using blended learning are provided with a variety of learning options from which they can adopt effective learning processes.

However, for successful blended learning to occur there should be a series of activities executed through four phases, including pre-analysis, design of activities and resources, instructional assessment, and instructional verification. The analysis phase is aimed at studying the learners' characteristics, objectives and learning environment. In the design phase, the blended learning implementing institutions are supposed to come up with the overall design of the learning process, clearly showing the learning units, delivery strategies and required resources. In the instructional assessment phase, the implementing institution is supposed to carry out an evaluation of the learning process, curriculum evaluation, and evaluation of the learning activities identified in phase two. The deliverables of blended learning theory include the analysis report, design report, and evaluation report in each phase respectively.

METHODOLOGY

The design adopted for this study is descriptive survey design and was conducted in Port Harcourt in Rivers State. The population of this study comprised of all lecturers and students of the tertiary in institutions in Rivers State. At the time of this study, there are five Tertiary institutions, each having its number of lecturers and students but collectively giving a total of 111,540 population size. The sample size for lecturers and students was determined using the Taro Yamane formula and a sample size of 771 (371 lecturers and 400 students) was derived. The instrument for data collection was a structured questionnaire titled: Management of E-Learning Facilities for Effective Instructional Process in Tertiary

Institutions (MEFEIPTI). The instrument was subjected to face and content validity by the supervisor, and the reliability of the instrument was determined using the test-re-test technique, from which a reliability index of 0.88 was derived. Data derived from the field were sorted, coded and analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0. Simple descriptive statistical tools such as mean and standard deviation were used to analyse the research questions, while z-test was used to test the hypothesis at 0.05 level of significance.

RESULTS AND FINDINGS

Research question 1: *Are federal government tertiary institutions better equipped with e-learning facilities than their state counterparts?*

Table 1: Simple percentage showing responses of both state and federal institutions

S/No	Items	Federal		State	
		Yes F(%)	No F(%)	Yes F(%)	No F(%)
1	Multimedia PC/ Laptops	49(31.61)	106(68.39)	209(33.92)	407(66.08)
2	Multimedia Projectors	55(35.48)	100(64.52)	230(37.33)	386(62.64)
3	Interactive White Board	15(9.68)	140(90.32)	138(22.41)	478(77.59)
4	Internet access	37(23.88)	118(76.12)	239(38.80)	377(61.20)
5	Projectors screens	43(27.75)	112(72.25)	175(28.41)	441(71.59)
6	Photocopiers, Scanners, Printers	63(40.65)	92(59.35)	255(41.40)	361(58.60)
7	Digital Video Cameras or Web-cameras	57(35.50)	98(64.50)	135(22.39)	481(77.61)
8	Television-set	108(68.40)	47(31.60)	452(73.38)	164(26.62)
9	Radio	120(77.41)	35(22.59)	402(65.25)	214(34.75)
10	Digital Libraries	39(23.90)	116(76.10)	190(30.85)	426(69.15)
11	Blank CDs	125(12.91)	135(87.09)	457(73.19)	159(26.81)
12	Video cameras	45(29.04)	110(70.96)	222(36.04)	394(63.96)
13	Standby Generators	50(32.26)	105(67.74)	247(40.10)	369(59.90)
14	Telephone Facilities	37(23.88)	118(76.12)	239(38.80)	377(61.20)
15	Flash drives/External Hard drives	123(79.36)	32(20.64)	437(70.95)	179(29.05)
16	Digital Video Disk players	61(39.36)	94(60.64)	209(33.92)	407(66.08)
17	CD-ROMs in Specific subjects	103(66.46)	52(33.54)	463(75.17)	153(24.83)
18	Instructional Video Tapes/VCD/DVD/IVD/ IRI	54(34.84)	101(65.16)	235(38.15)	381(61.85)
19	Instructional audio tapes	43(27.75)	112(72.25)	400(64.93)	216(35.07)
20	Hypermedia and Hypertext resources	36(23.86)	119(76.14)	239(38.80)	377(61.20)
21	computer media conferencing and audio conferencing	43(27.74)	112(72.26)	155(32.92)	411(67.08)

Research Question 2: *What are the problems of management of e-learning facilities in Rivers State tertiary institutions?*

Table 2: Mean and standard deviation showing the problems of management of e-learning facilities in Rivers State tertiary institutions

S/No	Item	Mean	Std.dev	Decision
1	High cost of 'air time' affects the use of internet Services.	3.17	0.74	Agreed
2	High cost of maintaining electronic gadgets discourages their use for learning.	2.86	1.13	Agreed
3	Funds are insufficient for the development of e-learning infrastructures.	2.53	0.87	Agreed
4	Lack of manpower to maintain Information Communication Technology (ICT) infrastructures	3.19	0.72	Agreed
5	Poor power supply affects the use of electronic Devices for teaching and learning.	3.18	0.99	Agreed
6	Relevant materials are difficult to find on the internet.	1.59	0.80	Disagreed
7	Contention between the school and lecturers on Intellectual property right is a factor that discourages the availability of e-learning facilities.	1.80	0.74	Disagreed
8	Lecturers may lose class control if e-learning is encouraged.	1.39	0.49	Disagreed

Table 2 shows that the mean score rating of the responses of respondents range from 1.39 to 3.18. All items ranked above the cut-off point except items 6, 7 and 8 which ranked below the cut-off point.

HO₁: **There is no significant difference between the mean responses of the managed e-learning facilities in the Federal Government tertiary institutions than their State counterpart.**

Table 3: Z-test Result of the Difference in Mean Rating of the Respondents

Institution	N	Mean	Std. Deviation	df	z-cal	z-crit	Decision
Federal	155	14.81	6.28	769	1.14	1.96	NS
State	616	14.35	4.00				

The analysis in table 4.9 shows that the calculated z value of 1.14 is lesser than the table value of 1.96. Hence, the null hypothesis is accepted, meaning that there is no significant difference between federal and state rating regarding on the managed e-learning facilities in tertiary institutions.

DISCUSSION OF FINDINGS

The findings revealed that e-learning equipment such as interactive white boards, computers, projectors, TV sets, and printers are not adequately provided by the university. This is a reflection of the emphasis being placed on e-learning in the university. Pirani (2004) stated that for an institution to be able to adopt e-learning, it must provide adequate and reliable technical infrastructures. From the above, it can be seen that e-learning infrastructures are inadequately provided in tertiary institutions for effective teaching and learning.

Findings also revealed that lecturers are aware of the internet and can surf the web. But they cannot use it in facilitating the teaching and learning. UNESCO (2002) and Pirani (2004) are of the view that instructors need to know when, how and where to use ICT to enhance knowledge acquisition. The table further revealed that lecturers versatile in the use of computer applications.

CONCLUSION

It has been noted that e-learning is the application of internet to enhance learning. This study revealed that e-learning infrastructures are not available in tertiary institutions. Therefore, ICT infrastructures should be provided to facilitate effective teaching and learning in order to brace up to present day educational challenges. Efforts should be made towards tackling other factors that are militating against the usage of e-learning infrastructures. It is safe to conclude here that unless these facts are seriously taken into consideration and acted upon, education in Nigeria will only retrogress in a progressive world.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made to help improve e-learning usage in tertiary institutions.

1. Universities should liaise or register with organizations that have or publish educational resources or websites for easy access of educational materials from these websites.
2. Universities should upgrade her website or launch a website which lecturers and students can use to disseminate or access information. Such website should enable lecturers to upload their course materials.
3. Past projects should also be uploaded on the websites for easy access to both lecturers and students. The website should also freely host wikis/blogs and e-journals of the universities.
4. Universities should also liaise with private organizations to provide cheap electronic devices for students and lecturers. These electronic devices does not necessarily have to be laptops that are expensive but other electronic devices that could store, copy, display, record information such as MP5, WAP enabled phones, PDAs, etc., In addition, proper orientation should also be given to students on how to use these devices to promote learning.

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