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Abstract

This study assessed factors affecting use of electronic information resources by distance learning students using the National Open University, Lagos and Ibadan Study centers as a case study. Survey method was used for the study. The sampling method adopted for the purpose of this study was the simple random sampling techniques. The sampled respondents were drawn from the total population of 12,500 students at the Lagos and Ibadan study centers. However 2% of the population from each study centers was used as the sample size. A structured questionnaire was developed and administered to elicit information from the respondents. A total of 250 copies of the questionnaire were retrieved, which is strictly administered to the students. Data collected were analyzed using simple descriptive statistics. The study revealed the various factors militating against the use of electronic information resources by the distance learning students. The result showed that the extent of use of electronic information resources was very low, coupled with the low level of awareness among the students. The result also showed that majority of the electronic information resources were not also in the centers. Based on these findings, the study outlines different measures that should be put in place by government to address the unavailability of most of the electronic information resources in the two different study centers.

Introduction

Experience both nationally and internationally have shown that conventional education cannot meet the demands of the present day socio-educational milieu, especially for developing countries like Nigeria. In Nigeria, the actual numbers of students admitted annually into conventional university are so low compared to the number of those yearning to have university education. This lack of capacity has necessitated the issue of open and distance learning (ODL) as an innovative and cost effective approach to the educational system. To bridge the gap between participants in the instructional process, ODL offers structured learning in which the instructor and students are separated by time and space, making use of instructional materials such as print materials, audio and video cassette, CD-ROM, television and radio broadcasts as well as multimedia components such as computer and satellite transmission. (Peat and Helland, 2002)

Distance education is not a recent development in Nigeria. As far as the 1920's, distance education was provided by well known correspondence institutions such as the Rapid Result College, Wosley Hall, Bennet College, Pitman Institute and so on, all located in the UK. However, there was a paradigm shift in the conventional education system in Nigeria as a result of the establishment of off-campus outreach centers run by universities, polytechnics and colleges of education (Iyela, 2003). The most prominent was the establishment of the National Open University of Nigeria on the 22nd of July 1983 (though it became fully operational on the 12th of April 2001). As an institution of higher learning, it offers instruction through methods of ICT driven distance education process.

The Concept of Distance Education and Electronic Information Resources

The term “Distance Education” refers to an educational approach in which there is quasi- separation of the learners and the teachers in time and space (Keegan, 1996). In distance education, the instructor and instructional strategy and methods are subsumed into the learning materials popularly referred to as the study materials that have been designed as self directed learning guide for students. The term open learning refers to the philosophical construct that seek to remove barriers and constraints that may prevent learners from accessing and succeeding in quality and lifelong education. ODL as an educational method and a philosophical construct has been identified as the most potent instrument for combating the educational problems assailing a nation like Nigeria. (Ray K and Day Joan, 1998)

Both distance education and E-learning are intertwined; e-learning is an electronic mode of knowledge sharing and transmission which may not necessarily involve physical contact between teacher and student. The concept, computer aided teaching and computer aided learning have given birth to computer aided instruction which represent a combination of both teaching and learning. Access to instruction through the Internet is flexible, ensure broad viability and availability of educational opportunities and can be assessed irrespective of time and space. The globalization of distance education provides many benefits for developing countries for the realization of their educational goals as at

when stated. Three main factors have led people to be more interested in distance learning-

- *the government's call for regular improvement in workers skill, re-training and the technological development have made it possible to teach more subjects and students at a distance.*
- *Open and distance education has the tendency to expand access to education at any point in time. Children, youth and adults who were excluded from conventional institution because of age, work, family bottlenecks, geographical distance and quota problems, catchment policy, insecurity and insufficient fund may be able to learn through open and distance learning without any barrier.*
- *Open and distance education may be used to provide educational opportunity at secondary and tertiary levels for refugees and displaced people and other non migrant nationals. It may be an option for youths and adults who have to work to continue learning so also those who have no access to employment may also benefit from open and distance initiative.*

The electronic information resources entails sets of instructional materials such as audio and video cassettes, CD-ROM, television and radio broadcast as well as multimedia components such as computer and satellites. Electronic resources offer today students different opportunities from their predecessors. Brophy (1993) details the advantages of networking for users as being:

That the information needed can be delivered from the most appropriate sources to the users, the user can specify his or her needs dynamically, the information is obtained when it is wanted, so becomes 'just in time' rather than 'just in case', the user only the information needed to arrive at question; and finally, the information is only stored should the user wish. Electronic information resources can therefore provide a number of advantages over traditional print based sources.

Electronic information is often faster than consulting print indexes especially when searching retrospectively and they are more straight forward when wishing to use combination keywords. They open up the possibility of searching multiple files at one time. Electronic resources can be printed, searched and saved to be revisited at a later date. They are updated more often than printed tools. One advantage especially to distance learners and those with limited time to access the library is their availability from outside the library by dial up access. The place of electronic information resources in distance education includes:

- Computer Based Training
- Asynchronous Online Training
- Real Time Interactive Training
- Cellular Network – Based Training
- Computer Based Global Information System

Each of the above will be discussed in turn:

Computer Based Training

Personal computers are very effective media and instrument of traditional/conventional "distance education. Besides transferring course material, personal computers can facilitate the acquisition of knowledge by offering access to

databases, by interactivity and by making self assessment possible (Tamas et al; 1996). Multimedia teaching materials and method offer qualitatively new opportunities in open and distance learning. The development of information technology makes the increasing wider application of electronic information resources in distance education possible.

Asynchronous Online Training

Asynchronous training in distance education involves self – paced learning which could be CD-ROM based, Network- based, Internet based or intranet based. It may include access to instructor through online bulletin board, online discussion group and e-mail or, it may be totally self contained with links to reference materials in place of a live instructor (Howstuffwork, 2008). Online training is based on an activated and operation– ready communication network. A network is a system used to link two or more computers. Network users are able to share files, printers and other resources, send electronic message, and run programme on other computers (Midkiff, 2006).

The networks especially the local network with large bandwidth have great potential in meeting the educational needs, with access and interactivity can provide for just in time education of students needing continuously new knowledge. In house training can be completely carried out by using regularly updated, interactive multimedia course materials that can be made accessible simultaneously for hundreds of learners. (Tamas et al, 1996).

Real Time Interactive Training

Synchronous training is done in real time with a live instructor facilitating the training. Everyone logs in at a set time and can communicate directly with the instructor and with each other. A student can raise a “cyber hand” (to ask a question or to make contribution) and even view the cyber white board. It lasts for a set amount of time from a single session to several weeks, months or even years. This type of training usually take place via the Internet website, audio or video conferencing, Internet telephony or two – way live broadcast to students in a classroom (Howstuffwork, 2008). Computer based telecommunication increases the access to and enhances effectiveness of open and distance learning, decreases cost and open ways for new approaches. The rapid progress in the use of advanced telecommunication opens completely new perspective for open and distance learning.

Computer Based Global Information System

The Internet is composed of many interconnected computer network. Each network may link tens, hundreds, or even thousands of computers, enabling them to share information and process power. The Internet has made it possible for people all over the world to communicate with one another effectively and inexpensively (Comer; 2006). The World Wide Web (www) is a computer based network of information resources that combine text and multimedia. The information on the www can be accessed and searched through the Internet – a global computer network (Comer, 2006). Both Internet and the www allows easy access to databases, distance education course materials, simulation

and self assessment tests, contributing in this way to the extension of access and successful application of traditional distance education system. Beyond using the Internet to extend and complement traditional distance education, it offers the opportunity of real globalization of distance education.

Cellular Network–Based Training

Cellular Radio Telephone also called cellular telephone or cell phone is a low–powered lightweight radio transceiver (combination transmitter – receiver) that provides voice telephone and other services to mobile users. A new generation of services for cell phones includes video conferencing and Internet access with the ability to send and receive e–mail (Frieden, 2006). This defines a strategic role of cell phones in ICT- driven distance education Distance learners and instructor can now use videophone that uses a miniature video camera to send images as well as voice communication. This is because videophones can be connected to regular telephone lines or their messages can be sent via wireless technology (Rickert, 2006).

Since independence, Nigeria has continued to demonstrate an irrevocable and unwavering commitment to education as a tool for national and personal development and as an inalienable right of her citizenry. Thus, in 2002, the National Open University Act of 1983 which had been suspended in 1984 was resuscitated by former president Olusegun Obasanjo. This rebirth has renewed the focus to make education available to as many people as having the ability, willingness and ready to benefit from the quality education provided through flexible and affordable distance learning.

The National Open University of Nigeria (NOUN) is the first full-fledged university that operates in an exclusively open and distance learning (ODL mode of education). NOUN focuses mainly on Open and Distance teaching and learning system, and deliver its course materials via print in conjunction with (ICT) when applicable .This “single –mode” of open education is different from the integration of distance learning system into the face to face teaching and learning system, which is more typical of conventional universities in Nigeria and other parts of the world. Instead, high quality, self directed, learner centered instructional materials are made available to student and instruction is carried out when necessary, typically after arrangements have been made by the university based on agreement between the students and course facilitators. Similar to other distance learning institutions around the world, tutorial facilitation is optional for students.

Although electronic information \resources hold great potentials in supporting and augmenting existing distance education programme, the fact remains that there are various problems militating against the use of electronic information resources by the distance learning students. If these challenges are not addressed, the effectiveness of electronic information resources in distance learning programmes will be adversely affected. Foremost among the problems, is the lack of skilled manpower to manage available system, inadequate training facilities, irregular power supply and poor Internet connectivity. These factors are not exhaustive but represent the major problem faced in the development of electronic information resources for distance education in Nigeria. Against this backdrop, the study of this nature seek to evaluate the various factors

affecting the use of electronic information resources by distance learning students of the National Open University, Lagos and Ibadan study centers.

Objectives of the Study

The overall objective of this study is to ascertain factors affecting the use of Electronic Information Resources by distance learning students.

The specific objectives are to:

- Investigate the learner's awareness and use of electronic information resources.
- Determine the extent of use of electronic information resources by the distance learners.
- Identify factors that determine Electronic information resources usage.
- Identify the problems that affect the use of electronic information resources.

Methodology

The study adopted a survey method. The instrument used for the survey is a self reporting questionnaire. The survey was carried out in two centers of the National Open Universities in South western Nigeria. These were the National Open Universities Ibadan and Lagos study centers. The study was limited only to the bona fide undergraduate (DLC) students of the two centers who were electronic information resources users. The number of bona fide DLC students in both centers was 12,500 (Statistical Record, 2003 – 2008).

The sampling method adopted for this study was the simple random sampling technique. However 2% of the population from each study center was used as the sampled size which therefore makes a total of 250 respondents. Two hundred and fifty questionnaires were randomly distributed to students in the two surveyed centers. Of this, 100 were distributed in NOUN (IBADAN) while 150 were distributed in NOUN (LAGOS). All the questionnaires distributed were retrieved. The questionnaires were collated and analyzed using frequency counts, percentage and appropriate statistics to test and analyze the result.

Sample Size

NAME OF INSTITUTION	POPULATION	SAMPLE
NOUN : IBADAN	5000	100
NOUN: LAGOS	7500	150
	12,500	250

Data Analysis and Interpretation

The collected data were analyzed based on the purpose of the study and research questions formulated for the study. The findings of the study were presented and analyzed .The results of the answers to the five research questions formulated for the study were presented in descriptive form using tables of frequency and percentage.

Research Questions

Research Question 1: Are distance learners aware of the availability of different types of electronic information resources in their study centers?

Table 1: Level of awareness of electronic information resources

Level of Awareness	Frequency	Percentage
Yes	108	43.2
No	142	56.8
Total	250	100.0

The result in Table 1 showed that majority of respondents -142 (56.8%) were not aware of the availability of electronic information resources at their study centers while 108 (43.2%) claimed that they were aware. This result implied that there was low level of awareness of the availability of electronic information resources which invariably has a negative effect on the level of utilization of the electronic resources by the distance learners.

Table 2: Types of Electronic Information Resources

TYPE OF ELECTRONIC INFORMATION RESOURCES	FREQUENCY	PERCENTAGE %
Audiotape	120	48.0
Audio conferencing	36	14.4
E-mail	109	43.6
CD- Rom	159	63.6
TV/Radio Broadcast	56	22.4
Videotapes	38	15.2
Voicemail	32	12.8
Internet	127	50.8
E-Journal	27	10.8
E-Book	67	28.8

The result of the survey revealed that most electronic information resources were not readily available to users in the two study centers. This is shown in table 2 with only the CD-ROM being indicated by majority 159(63.6) of the respondent. The least available electronic resources in the study centers was E-journal which was indicated by just 27(10.8%) of the respondents.

Research question 2: To what extent do distance learners use these resources in their study centers and for what purposes?

Table 3: The utilization level of electronic information resources by distance learners

UTILIZATION LEVEL	FREQUENCY	PERCENTAGE %
Within the University Campus	36	14.4
Outside the University campus	57	22.8

Cybercafé	150	60.0
The University library	7	2.8
Total	250	100.0

The result in Table 3 showed that a larger proportion of the respondents 150(60.0%) made use of the cybercafé in order to gained access to the electronic information resources especially the Internet facilities. This was followed by another 57(22.8%) of the respondents who claimed that they gained access to the electronic information resources outside the university campus. Only 7(2.8%) of the total respondent indicated that they made use of the University Library.

The fact of the matter still remains that most of the available electronic information resources available at the centers were being provided on commercial basis i.e. it was not the study centers that were in charge of their provision but commercial ventures within the two study centers especially the Internet facilities, except for the CD-ROM which was being packaged for students on admission.

These Internet and online facilitation support services such as e-mail, newsgroup, remote login, file transfer protocol and worldwide web - www. They equally provide facilities and capabilities to browse lots of subjects' headings to get what is available.

Table 4: Purpose of use of electronic information resources

PURPOSE OF USE	GREATLY		MODERATELY		RARELY		POORLY	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
Project write up	16	6.4	43	17.2	109	43.6	82	32.8
Article write up/Assignment	42	16.8	76	30.4	88	35.2	44	17.6
Knowledge/learning	76	30.4	66	26.4	59	23.6	49	19.6
Information Exchange	73	29.2	68	27.2	47	18.8	62	24.8
Group Discussion	41	16.4	33	13.2	94	37.6	82	32.8

Table 4 revealed that majority of the respondents in the two study centers to a great extent made use of the available electronic information resources mostly for knowledge acquisition and learning purposes. This constituted 76(29.2%) of the respondents. This was followed by information exchange which constituted 73(29.2%) of the respondents. The least percent of the respondents, 16(6.4%) utilize these electronic information resources for project write up. The findings revealed that the most significant use of electronic information resources by the distance learners in both the Lagos and Ibadan study centers of the National Open University was for knowledge acquisition and learning purposes as well as information exchange. Most of the respondents rarely used the electronic information resources for project write-ups, assignment and group discussions.

Research Question 3: What are the major factors that determine electronic information resources usage?

Table 5: Factors that determines electronic information resources usage

FACTORS	GREATLY		MODERATELY		RARELY		POORLY	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
Facilitation of information	109	43.6	67	26.8	42	16.8	32	12
Enhancement of research activities	101	40.4	76	30.4	38	15.2	35	14.0
Enhancement of Quality of Academic work	107	42.8	58	23.2	59	23.6	26	10.4
Relevance to field of study	46	18.4	82	32.8	88	35.2	34	13.6
Inadequate printed sources	42	16.8	70	28.0	92	36.8	46	18.4

Table 5 indicated the major factors that determine electronic information resources usage by the distance learners. The table showed various determinants of electronic information resources usage like facilitation of information, which was indicated by 109(42.8%) respondents, enhancement of quality of academic work which was affirmed by 107(42.8%) respondents, as well as enhancement of research activity. On the contrary, factors such as relevance to field of study and adequacy of printed sources did not serve as good determinants and in most cases they did not prompt the distance learners in the two study centers to make use of electronic information resources.

Research Question 4: What are the major factors that hinder the use of these electronic information resources by distance learners?

Table 6: Hindrances to effective utilization of electronic information resources

Hindrances	Greatly		Moderately		Rarely		Poorly	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
Poor Internet connectivity	100	40	84	33.6	35	14.0	31	12.4
Financial problem	95	38	80	32.0	40	16.0	35	14.0
Poor electricity supply	117	46.8	75	30.0	30	12.0	28	11.2
Insufficient skill	98	39.2	80	32.0	35	14.0	37	14.8
Poor training programme	94	37.6	75	30.0	39	15.6	42	16.8
Excessive academic workload	93	37.2	67	26.8	48	19.2	42	10.8

In National Open University today, the use of electronic information resources is a new phenomenon and a number of hindrances directly or indirectly impede their utilization by the distance learners. The result in Table 6 revealed that poor electricity supply greatly hindered the use of electronic information resources. This was represented by 117(46.8%) of the respondents. Also, poor Internet connectivity was another

hindrance which greatly affected the use of electronic information resources with 100(40%) responses rates. Other factors were insufficient skills, financial problem, poor training programme and excessive academic workload.

Discussion of Findings

From the study, it could be inferred that the respondents were not aware of different types of electronic information resources available at their study centers. The study result has shown therefore that the use of electronic information resources by students in the surveyed centers were low.

It was also discovered that a large proportion of the respondents made use of the cybercafé within and outside the campus in order to gain access to the electronic information resources especially Internet facility. This is due to the fact that all these electronic information resources were not readily available in the surveyed study centers except the CD-ROM which was being packaged for students on admission. The advantage of using electronic resources especially the use of the Internet, according to (Adeoti, 2000) stated that Internet services enable distance learners to search interesting libraries for relevant information in research topics, latest discoveries and information on all disciplines/subjects. Equally noted in the use of electronic resources are their flexibility, comprehensiveness, efficiency and effectiveness in information service delivery to the distance learners.

Most of the respondents in the two study centers made use of the electronic resources for knowledge acquisition and learning purposes. The facts of the matter remains that these resources facilitated their information awareness capacity and it also enhanced their quality of academic and research activity. A related study by (Opeke,2004) buttress the fact that with the use of electronic information resources, the problem of accessing information lessened and the constraints of time and space was removed.

Various factors that militate against effective utilization of electronic resources by distance learning students were discovered during the course of the study .Among the factors are: Poor electricity supply which was rated very high, followed by poor Internet connectivity, insufficient skill, financial problem, poor training programme and excessive academic workload. All these challenges highlighted above hindered the National Open University programmes in Lagos and Ibadan study centers in providing adequate current information to distance learners. In consonance with this findings was a study by (Ejibuwa, 2005) who found out that the absence of basic infrastructure like constant electricity necessary for ICT growth, lack of facilitation for network resources sharing, inadequate professionals with requisite ICT skills and above all, inadequate fund to support development in their direction were impediment to the use of electronic resources.

Conclusion

For one reason or the other, not everybody can afford to embark on conventional classroom learning. In order to bridge the gap, distance learning education is the most suitable medium.

The bottom line is that the present state of distance education in Nigeria requires overhauling because the essential electronic information resources that should be in place for effective management of distance education are lacking. It should be noted that the challenges faced by both centers and students are quite enormous. It is high time the government arises to this all important task and seeks for ways of overcoming numerous challenges militating against effective use of electronic information resources.

Recommendations

The following recommendations were made based on the findings of the study.

- It is imperative that government make adequate provision for different types of electronic information resources for use at NOUN Study Centers such as Audiotapes, Audio conferencing, E-mail service, TV/Radio broadcast, Videotape, Voicemail, Internet facility, E-book, E-journal, Electronic database and Online database. All these can effectively be used in literacy for all through distance education.
- There is an urgent need to improve infrastructure in the country particularly electronic supply, IT, telecommunication item such as cellular phone, computer, fax machine, telephone, television, radio, Internet service provider. Adequate fund should also be available to the National Open University; Lagos and Ibadan study centers to enable them make their online library functional.
- There should be National policy on distance education by the Nigerian government. There is also need for government policy to make computer literacy compulsory irrespective of the level and course of study. Thus, screening for admission in distance education should include practical demonstration of ICT/Computer literacy skill by the prospective students.

To make distance education possible, the learning system and those who manage them must prepare people to work with the new technologies competently and confidently. This is because distance education system needs to deposit copies of correspondence text, audiocassettes, Videotapes, CD Rom, E-book, E-journal and other teaching and learning materials produced by them to the various libraries in their environment. This will be useful to distance education students to enable them to make reference to any of those materials when there is need to it.

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