# THE PERSPECTIVE OF E-LEARNING AND LIBRARIES IN AFRICA: CHALLENGES AND OPPORTUNITIES

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THE PERSPECTIVE OF E-LEARNING AND LIBRARIES IN AFRICA: CHALLENGES AND OPPORTUNITIES

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Abstract
Purpose- This paper aims to examine and discuss the crucial roles libraries play in E-Learning; the challenges and opportunities facing the E-Learning programme and the library’s involvement.

Design/methodology/approach- To elicit the necessary information, a literature review of studies done on E-Learning and libraries was done. Materials were sourced online and offline to build the literature of this work. The paper gives an overview of E-Learning and types; benefits of E-Learning; the infancy stage of E-Learning, libraries and E-Learning technologies; starting points for libraries and E-Learning and challenges facing E-Learning.

Findings- a lot of challenges are facing the successful implementation of E-Learning in institutions and also the role of libraries in enhancing E-Learning needs a lot of issues to be addressed as library’s involvement in E-Learning is found to be very crucial.

Practical implications- This paper establishes that libraries are the heart of institutions and so, are meant to play a vital role in the learning activities, as well as support all kinds of learning which includes E-Learning. There is also need for librarians to be trained in adopting E-Learning technologies and collaborating with faculties and departments in tutoring the learners.

Originality/value- The study possesses two characteristics that make it different from other studies in the related area. First of all, it provides a theoretical basis for librarians to be actively involved in E-Learning as it listed some responsibilities of the library and librarians in executing E-Learning programmes. Secondly, the paper proposes six laws (Sm²U⁴L) to govern E-Learning and libraries.

Keywords: E-Learning, Libraries, Librarians, ICT, online learning,

Paper type: Viewpoint

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Introduction
Literacy has proven to be one of the major pursuits of learners in today’s world. Computer literacy especially has posed a major concern to many individuals owing to the fact most of the things done today is computer-aided. In education, computer has made major impacts to enhance learning. There is distance education, online learning and E-Learning. In the digital era, libraries are not left behind in implementing E-
Learning and online learning. This perspective of E-Learning and libraries is a means of introducing libraries in the scene of computer-based learning and varieties of learning, bringing into the scene, the unity of libraries and E-Learning.

Libraries are at the forefront in playing real roles in enhancing E-Learning in this age. The education of today has taken different shapes, especially this time that the language spoken by majority of individuals and learners is ICT. Learners of today have tried to embrace these technologies to enhance their learning in institutions, and libraries have come in to play – with the role of offering various services that are ICT incorporated. E-Learning is becoming popular, although it is at its infancy stage in Africa.

In recent times, learners and educators have been faced with glut of information sources, thus giving rise to the need for enhanced delivery of information. Information explosion has gained ground in these modern times such that various technological advances have put in place in order to aid the organization of such information. Information and Communication Technologies and its use have impacted the way learners and educators acquire and deliver information and knowledge. Information can be delivered in structured, semi-structured or unstructured format (Karim and Dih, 2008). Whichever format, the library has a vital role to play in this information delivery and there are a lot of challenges facing this task especially in these modern times. E-Learning has been recognized as learning via the Internet; an advanced form of distance education, and e-library or digital library is considered as organized collection of knowledge, stored in digital or electronic interface technologies. E-Learning has been made possible by the creation of digital library, virtual library or electronic library. However, there have been tremendous changes in the available technology and the Internet has emerged as an opportunity to begin fashioning the digital library.

Libraries of the 21st century have reached the point to where they should use educational technologies to maximize access to digital resources and to re-introduce the need for teaching the research process in the nebulous information environment. However, no matter the efforts made by libraries and librarians in enhancing E-Learning and the opportunities they offer, there are always challenges that are likely to crop up. Typically, libraries are left out of the decision-making and implementation process of E-Learning. This means that libraries have the challenge of deploying their services in a new learning environment using a technology outside their control. At the same time, in defining the standards and the “cataloging” of the learning objects created within the course management systems, librarians are rarely invited to participate in the ongoing debates despite their strong interest and experience in knowledge management (McLean, 2003).

E-Learning: An Overview

E-Learning has a wide variety of definition, but ultimately it is used to describe the fields of online learning, web-based training and technology-delivered instruction. E-Learning could be interpreted as electronic learning; the learning that involves the Internet; learning from a distance via the aid of the Internet and, or other electronic gadgets.

CISCO Systems defined E-Learning as
"Internet-enabled learning. Components can include content delivery in multiple formats, management of the learning experience, and a networked community of learners, content developers and experts. E-Learning provides faster learning to reduced cost, increased access to learning, and clear accountability for all participants in the learning process. In today’s fast-paced culture, organizations that implement E-Learning provide their work organizations that implement E-Learning provide their work force with the ability to change into an advantage”.

Elliot(2009) defines E-Learning as the “rise of network technology to design, deliver, select, administer, and extend learning”.

According to Anderson as cited by Moore and Ojedokun (2003),
“the anytime, anywhere, characteristics of E-Learning tools, and the fact they are available from devices including desktops and notebooks, can also accelerate the productivity gains by making education more accessible. Indeed E-Learning could be regarded as improvement on the delivery of open and distance learning”.

Robert and Piper (2009) define E-Learning as “those that leverage various Internet and web technologies to create, enable, deliver, and/or facilitate lifelong learning”.

Under the sub-heading of Pedagogy, Learning Methodologies and Technology, OCLC E-Learning Taskforce (2003) stated that E-Learning no longer applies merely to distance learning, but also to more traditional courses that have incorporated electronic elements into the day-to-day teaching and learning process.

Wikipedia defines E-Learning as a general term used to refer to a form of learning in which the instruction and student are separated by space or time where the gap between the two is bridged through the use of online technologies.

E-Learning is generally seen as either learning via the Internet or any other electronic means or gadgets. It is learning enabled by electronic technology. E-Learning technique could be web-based learning, computer-based learning, or virtual classrooms and content delivery via e-networks, audio or video tape, satellite TV, video conferencing, CD-ROM, i-Pods, e-mails, wireless and mobile technology. For instance a course could be packaged in a CD (Courseware) with voice additions and simulations/demonstrations, enabled by the computer and sold to students. These students can take the CDs home and play them in a bid to extract the packaged information. Some courses are prepared in such a manner and they also contain questions which the student can use for assessment purposes.

In the same vein, courses can be offered via the satellite, radio, e-mail, mobile phone. These are different ways and techniques of E-Learning. E-Learning therefore, comes in different formats and categories.

The Commission on Technology and Adult Learning (2001) defines E-Learning learning as instructional content or learning experiences delivered or enabled by
electronic technology. In practice, e-learning incorporates a wide variety of learning strategies and technologies, from CD-ROMs and computer-based instruction, to videoconferencing, satellite-delivered learning, and virtual educational networks. Defined in this way, E-Learning is broader than web-based instruction or distance learning. It includes a range of ways in which students and teachers interact and communicate.

E-Learning Vs Online Learning

Once synonymous with distance learning, E-Learning has quickly evolved to include not only courses that are taught primarily online and over a distance, but also to include traditional “brick and mortar” courses that have been enhanced with electronic elements (McLean, N. and Sander, H. (2003).

The term E-Learning covers a wide set of applications and processes, including computer based learning, Web-based learning, virtual classrooms, and digital collaboration. It is the delivery of content via all electronic media, including the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM.

E-Learning = Technology-based Learning

Online learning constitutes just one part of technology-based learning and describes learning via Internet, intranet, and extranet. Levels of sophistication of online learning vary. A basic learning program includes the text and graphics of the course, exercises, testing, and record keeping, such as test scores and bookmarks. A sophisticated online learning program includes animations, simulations, audio and video sequences, peer and expert discussion groups, online mentoring, links to material on a corporate intranet or the Web, and communications with the corporate education records.

Online Learning = Web-based Learning

Categories of E-Learning

E-Learning can be classified into two broad categories, synchronous and asynchronous (Cantoni, 2004). Synchronous learning uses a learning model that initiates a classroom course, lecture or meeting using Internet technologies. In synchronous learning, the interaction is live; it requires all the participants to be available at the same time. It offers activities like lessons, assignments, chats, instant messaging, blogging and forums. In this platform, students are able to throw questions to their instructors, and their questions are given answers to. Though very interactive and offers instant responses to queries, there could be a problem of break in interaction in a situation where there is power failure in one end of the class. If a student experiences system failure, that particular student is cut off from the class activities. This is a serious challenge to synchronous category of E-Learning (Blended Learning). Asynchronous learning is described as a web-based version of computer based training (CBT), which is typically offered on a CD-ROM or across an organization’s local area network (LAN). The learner can assess the course at any time at his or her own pace (Takalani, 2008). Takalani has mapped out three different types of E-Learning.
Types of E-Learning

1. Web-based training: this is the delivery of content to the end user without significant interaction with (or support from) training professionals, peers or managers.

Supported online learning: this type of E-Learning is used mostly in higher education where the majority of the course content may be delivered through lectures or through distance-education textual material. Here, the interaction with the instructor, the dialogue with other learners, the searching for resource materials, the conduct of collaborative activities, the access to course outlines and supporting material are all conducted online.

Infancy Stage of E-Learning in Africa: a survey

There have been some initiatives by various African countries to adopt E-Learning in their educational system. Some African countries have started using sophisticated technologies to support Distance education practiced by such countries. A recent Commonwealth of Learning report highlighted the technological advancement that has taken place in Africa and the range of ICTs currently being used there. These include:

- financially assisted telephone dial accessed Internet connectivity for schools and rural Communities
- satellite transmission and e-mail
- advanced fiber-linked “skills centers” equipped with videoconferencing for university courses
- software job re-training packages
- telecenters—public sites that offer access for a fee to ICTs, which are becoming more common in South Africa, Ghana, Nigeria, Senegal, and elsewhere. In some cases, these are being expanded to offer access to learning (Intelecon Research, 2000).

Some African Universities have embarked on E-Learning exercise and there is a wide variety of different E-Learning practices in Africa. E-Learning is still very much in its infancy across most of the continent. Based on a Questionnaire Survey of People on the E-Learning Africa Database in 2007, respondents identified key constraints in seeking to implement and develop E-Learning strategies and practices, including the lack of infrastructure (particularly connectivity, and especially in rural areas), the need for appropriate training and capacity development, a lack of relevant digital content, and the cost of implementation.

A total of forty-five (45) countries participated in the *E-Learning Africa* survey and the countries that had the greater number of respondents are: Kenya (46 respondents), South Africa (38), Nigeria (35), Ethiopia (28), Uganda (25), Ghana (12), and Cameroon (10).

According to Unwin (2008), typical responses thus include the following:
Our institutions E-Learning developments are still at an infancy stage in that we are still working on trying to identify a suitable E-Learning platform to adopt for our content development and learner management (Botswana).

The Ethiopia Federal conjunction with the State TVET Authorities and representatives of the ICT sector are currently developing an appropriate strategy for the further development of ICT and blended learning (including E-Learning), addressing the issues of e-module development, development of distance education in TVET, necessary human resource development and other factors influencing the availability of ICT in the TVET sector (Ethiopia)

We don’t use any eLearning even though we are a distance learning centre. Only distance training in VC and the satellite-based ones were thought about from the beginning. But when people call us, they always hope to be able to follow courses without having to move. At the time we have a lot of demands for distance learning, particularly for the ones with a diploma, but we don’t have any platform for this (Senegal).

E-Learning in Africa is at its infancy stage. Unwin (2008) in his survey of E-Learning in Africa, concluded that:

This snapshot of E-Learning in Africa is based on a relatively small sample of Africans who by their very presence on the E-Learning Africa database are already actively interested in E-Learning......Relatively few of these are based on comprehensive Learning Management Systems, and most rely primarily on the use of the Web for gaining access to information, and on e-mail for communicating with colleagues and students. This confirms that E-Learning is in its infancy in Africa, but the evidence from those consulted in this survey is that there is nevertheless considerable enthusiasm for the potential that it offers across the educational spectrum.....(p.9)

Infrastructure like the availability of electricity, computers and the Internet is not yet fully in place to enhance the E-Learning project. For instance, in the survey, respondents were asked about the availability of computers in their places of work, 96 respondents which constituted 30% of the population, indicated that there was more than one computer lab in their place of work, and as many as 30 people (9%) claimed that there was one laptop computer available per student or worker. At the other extreme, only 6% (20) of respondents said that there were no computers available where they worked, and only 4% (14) commented that there was only one computer per class available.
Table 1 table outlines distance education technology use at selected tertiary institutions in Africa:

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<thead>
<tr>
<th>Country</th>
<th>Institution</th>
<th>Technology Used</th>
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<tbody>
<tr>
<td>Côte d’Ivoire</td>
<td>Francophone Virtual University</td>
<td>Satellite, CD-ROMs, video, and print</td>
</tr>
<tr>
<td></td>
<td>Addis Ababa University</td>
<td>Print and audio</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>African Virtual University</td>
<td>Satellite broadcasts, Internet, print</td>
</tr>
<tr>
<td></td>
<td>African Virtual University</td>
<td>Satellite broadcasts, Internet, print</td>
</tr>
<tr>
<td>Ghana</td>
<td>African Virtual University</td>
<td>Satellite broadcasts, Internet, print</td>
</tr>
<tr>
<td></td>
<td>University of Science and Technology</td>
<td>Print</td>
</tr>
<tr>
<td>Guinea</td>
<td>Francophone Virtual University</td>
<td>Satellite, CD-ROMs, video, and print</td>
</tr>
<tr>
<td></td>
<td>University of Conakry</td>
<td>Computers, Internet, print</td>
</tr>
<tr>
<td>Mauritius</td>
<td>University of Mauritius</td>
<td>Print, Internet, computers, audio, and video</td>
</tr>
<tr>
<td>Nigeria</td>
<td>University of Abuja</td>
<td>Print, audio/video tapes, digital radios</td>
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Benefits of E-Learning

In Africa, E-Learning is at its infant stage, but it has some benefits which it offers as a means of increasing access to and improving the quality of education in Africa. It also provides a potential means of addressing both access and quality in educational delivery in a relatively cost effective way. In the words of LaRocque and Latham (2003), E-learning offers a number of significant benefits in terms of increasing access to education. • Education can be delivered to learners with limited financial resources who need to study on their own time while they remain at work. • Education can effectively reach those learners who are often denied access. For example: - women who are unable to attend traditional educational programs because of household responsibilities or cultural constraints - secondary-school graduates who fail to gain admission to the traditional university with the residential campus model - economically disadvantaged or isolated Communities • Distance learning programs at the post-graduate level, delivered by universities in the developed world, can be accessed by self-motivated students in Africa without the need to incur the costs of living overseas.
In terms of Quality of Instruction E-learning can also bring a number of benefits in terms of improving the quality of instruction. • There is greater flexibility in the design and delivery of curriculum content than is normally associated with classroom teaching. • E-learning enhances the ability to adapt the program to suit specific student needs or work requirements.

The main purpose of E-Learning is to reduce the time people need to learn by providing specialized up-to-date information (Zabunov and Ivanov, 2003). According to Takalani (2008), E-Learning adds the benefit of encouraging learners to take responsibility for their learning and build self-knowledge and self-confidence.

### OTHER BENEFITS OF E-LEARNING

<table>
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<th>Benefits</th>
<th>Description</th>
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<tr>
<td>Online Training is less intimidating than instructor-led courses</td>
<td>Students taking an online course enter a risk-free environment in which they can try new things and make mistakes without exposing themselves. This characteristic is particularly valuable when trying to learn soft skills such as leadership and decision-making.</td>
</tr>
<tr>
<td>Improved collaboration and interactivity among students</td>
<td>Students taking an online course enter a risk-free environment in which they can try new things and make mistakes without exposing themselves. This is particularly valuable when to learn soft skills, such as leadership and decision-making</td>
</tr>
<tr>
<td>Learner-controlled</td>
<td>The individual has authority over the learning environment. Learning can occur anywhere, not only in the classroom.</td>
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<tr>
<td>Self-Paced</td>
<td>Students can work with their own time-table.</td>
</tr>
<tr>
<td>Anywhere, anytime, anyone.</td>
<td>Learners can assess training when it is convenient for them, at home or in the office.</td>
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<tr>
<td>Just-in-time access to timely information</td>
<td>Web-based products allow instructors to update lessons and materials across the entire network instantly. This keeps content fresh and consistent and gives students immediate access to the most current data.</td>
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<tr>
<td>Enhances level of independence and teamwork</td>
<td>E-Learning gives learners an opportunity to broaden their knowledge because they can learn on their own and that increases learner’s level of confidence and independence (Horton, 2000).</td>
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### Supporting E-Learning through Libraries and E-Learning Technologies

The primary objective of the library is to house and provide information resources intended for perusal and learning. In the world of E-Learning, libraries have tended to work under a different paradigm—providing students with access to online systems that allow them to “pull” information from catalogs, databases, and special collections to suit their learning or research needs (CARL, 2005). Towards establishment of Electronic Resource Centers (ERCs) and Internet Centres (I-Centres) in South Africa, (Agayei, 2007) in his report stated that:

*Libraries have for many years been the forerunners of utilizing technology to support teaching, learning and research. Students learnt computer skills from library orientation/information literacy training sessions but were not allowed to use the computer in the library for*
non-library purposes; e.g. typing, or access to e-mail except for sending retrieved files to own e-mail address. Faced with the challenge of making computers available for all students, the Technikon North West ICT Department collaborated with the Library and Information Services (LIS) to plan for docking stations to be housed in the Multi-media Centre in the Library. The plan was that students would take turns to loan laptops and utilize them for a given period of time in the library, like was the case with books (study material). Then came the merger in 2004 which inevitably brought about advantages to institutions like Technikon North West, which would have taken longer to attain the benefit of current technological facilities. (p.3)

There are eight (8) main uses of Electronic Resource Centre for students as pointed out by Agyei (2007). He noted that the Electronic Resource Centre is one of the specialized services that the Library and Information Services in South Africa offer in collaboration with the ICT, Department of Teaching and Learning with Technology and academic departments to advance students’ skills in utilizing technology in learning. One of the main uses of an ERC is for students to have electronic discussions with their lecturers. This is a means of enabling students learn new ideas from their lectures by electronic means instead of solely depending on face-to-face lessons with their tutors.

Agyei (2007) went further to discuss LIS support to E-Learning where he noted that:

*Through the efforts of the Directorate of Teaching and Learning with Technology (TLT)- previously known as the Telematic Education Directorate, and of course the natural progression of things in education and training, TUT is fast moving towards e-teaching and resultantly, E-Learning. Establishment of ERCs and I-Centres is one Way of supporting E-Learning* (p.5)

In synchronous E-Learning, materials are sourced with the aid of digital libraries. Hence, digital libraries play a vital role in E-Learning.

With digital libraries as noted by Karim and Dih (nd.), an individual can:

- Gain access to the holdings of libraries worldwide through automated catalogs
- Locate both physical and digitized versions of scholarly articles and books.
- Optimize searches; simultaneously search the Internet, commercial databases, and library collections.
- Save search results and conduct additional processing to narrow or qualify results.

Sun Microsystems defines a digital library as: “the electronic extension of functions users typically perform and the resources they access in a traditional library.

Digital libraries are characterized by the digital materials they contain. These digital materials are produced within the library or University or organization and subsequently made available to users electronically either via the Internet or Intranet.
Implications of library as support to E-Learning

- **Libraries Become Centres for E-Learning:** On this note, the library is expected to provide space, bandwidth and cutting-edge high speed computers. (Agyei, 2007).
- **Adequate Funds Provision:** There will be an inclusion of the project of E-Learning in the library budget. This will incur more expenses on the part of the library or whichever body is responsible.
- **Staff Training:** Library staff will embark on training sessions to enable them master the skills it takes to aid the learners when they are in the virtual world.
- **Provision of Infrastructure:** All the equipments required for E-Learning will be provided, like Computers, CD-ROMs, classrooms, earphones.
- **A team of Experts:** there would then be a need to form a team of people who may be regarded as experts in the E-Learning programme, who would make assessments and give feed-backs on progress so far.
- **Libraries will then open 24 hours per day:** Since some courses are online, students offering such courses may need to participate in their lecture at odd hours which is inevitable, especially if it is an online quiz. The library remains open to accommodate such scenarios.

Starting Points for Libraries and E-Learning

The libraries ought to be a viable and productive community player in the developing E-Learning landscape. This came as the sixth pertinent question raised for assessment, which gave rise to the creation of the OCLC E-Learning Task Force in the Spring of 2003. The 13-member group was created in order to also explore the issue of the library and E-Learning OCLC included librarians, administrators, technologists and faculty from the cooperative’s academic institutions. Members represented institutions from across the continental United States and the United Kingdom and from the full range of institution types, research and doctoral universities, four-year liberal arts colleges and community colleges.

The OCLC E-Learning Task Force (McLean and Sander, 2003) examined a number of issues related to the integration of library and learning management system functions, and concluded that both students and faculty require complementary tools and services to participate successfully in online teaching and learning environments.

Today both learners and instructors need to have the ability to create structure, locate, search retrieve and use material in multimedia and digital forms.

According to Roes (2001),

"Digital libraries seem, no are natural compliments to digital learning environment. They are able to integrate the freely available information on the web with more formal literature for which increasingly consortium licenses on electronic versions are arranged with publishers. These licences enhance and replace traditional collection development policies.....Much work done over the past decade in developing digital
libraries will have an important pay off for education innovation. The main issue, of course is whether more active learning styles will become the norm, since many of today’s courses are rather “self contained” nature in which educators present students with text to work through linear way and assessment is too often based on whether or not a student is able to produce the text prescribed by the teacher.”

Wang (2003) advocated that integrating a digital library into a learning environment requires considerable knowledge-building on the part of the organization involved. Wang suggested that the digital library should:

- Include all those learning resources that are relevant
- Classify the resources into logical categories
- Develop a knowledge vocabulary, including thesaurus
- Create indexes and search mechanism
- Constantly refine the classification (subject) categories

Roles Libraries Play in E-Learning

Librarians ought to start using educational technologies to maximize access to digital resources and to re-introduce the need for teaching the research process in the nebulous information environment. For librarians to get started with E-Learning, they should follow these steps:

i. **Create a library website that brings together multimedia resources** that faculty could integrate into E-Learning modules or use in the classroom. A library website can have links to other sites that offer video tutorials and CBTs. A library website can identify sites and search techniques to find: videos in the library and streamed video on the web (eg. Open Video Project); libraries of primary sources (e.g. Library of Congress American Memory Collection, Early Canadiana Online); image libraries (eg. Smithsonian Global Sound); audio files and pod casts (eg. CBC Archives and CBC News in Review); Webcasts; and learning objects (Laverty, 2004).

ii. **Design information literacy modules** for specific online or face-to-face courses.

iii. **Design online interactive information literacy modules.** Learners prefer interactive platforms for learning as opposed to text-based presentations. Librarians should therefore, make use of programs that offer these features. Examples include Viewlet Builder, Flash, Adobe Captivate (offers simulations).

iv. **Participate in collaborative team.** This talks about the library getting in agreement with the lecturers and technology experts and putting heads together in order to build a standard system to enhance E-Learning. As postulated by Ranganathan in his fifth law of library science, “the library is a growing organism”. Indeed, the library of the 21st century ought to adopt changes.
v. Provide access to e-resources. Librarians can catalog some electronic materials like CDs and make them accessible to users. The audio-visual department houses such materials and it becomes a great task for audiovisual librarians to learn how to catalog these resources and serve the patrons when they need them for research purposes.

vi. Libraries should organize online tools to provide metadata for online materials, link or live index entries to individual journal articles online, and provide mechanisms for requesting printed articles, with electronic desktop delivery promised in anticipated copyright legislation. This item came up in final report of the CARL E-Learning working group, 2005.

vii. Librarians as partners in teaching and learning. Librarians should participate in E-Learning initiatives by providing online and in-person instructions modules, guides, subject and class-based lists, as well as reference (synchronous and e-mail). In 2002-2003, over 330,000 students at CARL (Canadian Association of Research Libraries) institutions were instructed in using library resources, including online resources; these numbers are growing (CARL, 2005). According to the report,

CARL librarians offer classes and courses on research strategies, help students in determining useful scholarly resources, work with faculty in planning and developing literacy throughout distance education courses (in particular online courses) to integrate concepts of information literacy throughout the curriculum.

Librarians are expected to teach students who are involved in online learning how to surf the Internet; how to locate relevant materials they need. All these are geared towards obeying Ranganathan second law of Library Science which states “every reader his book”. If there is no provision of library information resources there can be very little learning, online or otherwise. Libraries serve as information literacy trainers, experts in organizing and providing access to online resources, content providers through digitization projects, and providers of print resources for learners (CARL, 2001).

viii. Libraries and Learning Object Repositories: As noted by ELN (2005), Libraries have a long history of providing online literature searches, inter-library loans, and more recently the deployment of multi-institutional, authenticated networks that allow access to digital journal articles and other electronic resources required by instructors and students to facilitate coursework and research assignments. Within the context of the Canadian academic scene, academic libraries should play a guiding role in the consolidation of shareable resource libraries, the provision of digital rights management for instructional resource libraries and the facilitation of interconnections between federal library systems.
Lib-eLearning Diag. 1: Starting Points for Libraries and E-Learning

Challenges and Barriers to implementing E-Learning

- E-Learning’s Time Requirements Challenge Instructors and Learners

  In the course of developing and maintaining E-Learning courses, much time is required. This is because often times, instructors may need to spend substantial time and effort re-engineering the course to adapt it for online delivery. Moreover, additional time is needed to communicate with students. The increased communications requirements (principally e-mail) are without a doubt the “800-pound gorilla” of E-Learning (EDUCAUSE, 2003). From the research conducted by Ndume (2008), it was observed that there are disruptions to online learners at workplaces as well as at family level.
• **Technical Issues:** when adapting E-Learning courses, there are several technical issues that hamper instructor’s activities. The lack of course prototypes and software standards raises the need for a common course development platform. Staff’s lack of technical expertise is also a hindrance to E-Learning. Unreliable technology can hinder instructor’s ability to monitor student activities. When designing E-Learning courses, instructors must consider student’s technical limitations – bandwidth and computer hardware. Limited bandwidth can cause downloading to be very slow and that can have a negative effect on the learning process of the learner (Takalani, 2008). Power outage can also pose a serious threat to E-Learning, especially in developing countries. In this case, there should be alternative of a stand-by generator as in classes where there is power outage. Ndume (2008) observed from his study conducted in Tanzania that another disrupting factor for eLearning in Tanzania is the availability of a stable supply of electricity. Based on his study, 45% of respondents agreed that during the learning period, they were very much affected by electric power cuts, 32% were undecided and from the interviews, it was observed that some people were using generators at home or at the office in case the power is cut off. Some had installed solar panels for home use. In the same vein, in his survey of eLearning in Africa, Unwin (2008) found that:

> Among the many problems facing those involved in delivering E-Learning, the availability of electricity is often mentioned as being of particular importance, especially in rural areas. However, in response to a question that asked people to describe the availability of electricity where they work, only 8 respondents mentioned that they had no supply of electricity at all. Interestingly, 37% of respondents (118) indicated that they had a regular supply of electricity and a further 39% (123) said they had irregular mains electricity. Other sources of electricity used by respondents included local hydro-electric power mentioned by 22% of respondents (69), batteries by 6% (18), and solar power by 4% (12); wind power was mentioned by only 2 respondents as a source of electricity. (p.7).

• **Social Factor - Studying in the cyberspace can be lonely and isolating** (Frakola, 2001). The results were based on the study that was done by Frankola on New York University (NYU) Online. The study indicated that learners in NYU Online’s pilot admitted that live sessions could be inconvenient but thought they were worth the effort. It is explained that lack of face-to-face contact among participants can reduce group identity and make relational ties more fragile. The fact that group ties and identity are reduced may be a barrier to E-Learning because mostly people feel comfortable to share information with people that they identify with and if a threat is introduced to the relationship, sharing of information becomes limited (Takalani, 2008). Before one can identify social factors that could be considered as challenges or barriers on E-Learning, one has to find the reasons why people or
individuals could prefer not to learn in an electronic environment, some of the reasons found were; avoidance, fear of demonstrating a lack of skill or competence, general lack of awareness of the need to develop or the opportunities available, blaming others for inadequate performance or capability rather than taking responsibility for own actions or feelings, lack of personal confidence and a general belief that people cannot change (Sloman, 2004). The human factor plays an important role in the learning process. It is stated that most training facilitators miss the collegial relationships and in-process rapport with learners (Mclester, 2002).

- **Perception on E-Learning**: On the part of both the teachers and learners, there could be wrong perception or misinterpretation of E-Learning. Some may see it as a wasted effort to spend money unnecessarily in duplicating learning strategies. In such a situation as this, there need to be tutorial before commencing the E-Learning programme. Allen (2003, cited in Ndume, 2008) bought this idea in his study on *Guide to eLearning: Building interactive, Fun, and effective learning programs for Any Company*. He noted that “to successfully create eLearning program, we need to ensure that value is really there and it is in concrete terms. That means we need to sell learners on the truthful proposition that participation will provide benefits worth the time and effort”. An E-Learning project may fail due to lack of vision or foresight. In some eLearning studies conducted in developing countries, it was found that lack of vision and framework in implementing eLearning lead to a failure of these eLearning projects (Kizito and Bijan, 2006; Pal, 2006).

- **Infrastructure: the availability of computers and the Internet**: For E-Learning to succeed in the developing world, it needs to build on another important pillar: the existence of infrastructure, along with some degree of connectivity (Gunawardana, 2005).

- **Lack of exposure to technology**: This could come from both sides, that is, the learner and the instructor. Some people have a fear of technology and as a result are not attracted to E-Learning. (Roffe, 2004). The fear or lack of exposure to technology may scare away some learners without even first trying to attempt it. Other than technological challenges, learners may experience distractions on the web and may also be side-tracked by the interruptions in the surrounding environment (Horton, 2000).

- **Limitation/Lack of Resources**: An institution may have the vision and goal to execute an eLearning programme, but lack of finances will pose a threat to the actualization of that big dream. This was supported by Zake (2009) who stated that poverty is one of the most important barriers, especially due to the fact that ICT is important and therefore relatively more expensive in Africa than in developed countries. One of the barriers to E-Learning in South African higher education institutions is the lack of resources to partner the commitment, and that the specific challenge facing E-Learning besides money was, the first one is money, the second one is money, the third one is money and the fourth one is money (Czernierwicz, and Ravjee, and, Mlitwa, 2006). It is mentioned that it is expensive in Africa to use the web compared to the other continents like Europe or America. To save the costs, one can just put the content on a CD and give it to the learners because learners will still get the same information (Czernierwicz, and Ravjee,
and, Mlitwa, 2006). Ezeani (2009) writing on “University Libraries and Distance Education in Nigeria”, wrote that lack of funds to fully acquire most of the resources needed to run an effective distance education programme is the reality in many libraries in Nigeria. This issue of lack of resources, especially in terms of money is a big threat to the establishment and running of E-Learning programmes.

Conclusion:

The Library has no doubt, played a vital role in the planning and execution of E-Learning programmes in Universities, although it has been confronted with myriads of challenges which include but not limited to time factor, technical issues, limited/lack of funds, social factor. Some authors have done survey of E-Learning in various countries and establishments and came out with findings and also made recommendations to that effect. For instance, LaRocque and Latham (2003) recommended that Multilateral and bilateral organizations, nonprofit organizations and foundations, and governments and the private sector must develop a development agenda and funding mechanism for action in E-learning in Africa with the understanding that public education alone cannot meet the challenges of lifting participation, improving quality, and ensuring equity of access. Based on the challenges that face E-Learning as discussed in this paper, the following recommendations are proffered with a view to improving this E-Learning pedagogy in Africa.

Recommendation

[Libraries/Librarians]

- Librarians working in face-to-face and virtual classrooms should be given every opportunity to learn about teaching practice. A survey of library studies programs reveals that courses that provide an in-depth preparation for teaching are not offered to librarians (Julien, 2005).
- Provision should be made for technical help desk. There should be an online reference service to learners, just like the “Ask the Librarian” reference service online. This will help the learners to know which way to go at a particular point in time so as not to get lost, and also it saves the time of the learner.
- Libraries should be actively involved in decision making and implementation process of E-Learning. McLean, N. and Sander, H. (2003) remarked that this means that libraries have the challenge of deploying their services in a new learning environment using a technology outside their control.
- Librarians should take up the job of cataloging the learning objects and the library should be the repository. In other words, courses should be acquired, catalogued and housed in the audio-visual section of the library for users to borrow and, or consult in the library.
- Librarians should apply their skills on metadata creation to developing and tagging learning objects and building object repositories. McLean (2003) noted that librarians generally have the most skills in metadata creation, but they have rarely been asked to apply those skills to developing and tagging learning objects and building learning object repositories.
Based on their long-standing experience with copyright management, the library should take leading role in Intellectual Property and Digital Rights Management. McLean, N. and Sander, H. (2003) stated that “this is an area ripe for further library leadership but it will be most successful if done in tandem with the development of content management systems.

There should be collaboration among librarians, faculty members and instructional designers. The OCLC Task Force opined that collaborative opportunities between the library and its academic partners can be broadly categorized under two principal strategic notions: 1) integrating existing and new library and institutional services into the E-Learning infrastructure; and 2) managing digital asset repositories.

Libraries should integrate plagiarism software into course management systems to encourage good practice and to assess reliability of content.

Librarians should be proactive in questioning the selection of learning management systems and complementary E-Learning tools by faculties and departments (CARL, 2005).

Libraries should have a link with OCLC so as to ensure that WorldCat is able to accommodate and aggregate the metadata that would allow the discovery and exchange of learning objects both within and among institutions and into and out of individual library systems. As McLean, N. and Sander, H. (2003) recommended, “as part of this accommodation, WorldCat should be able to accept metadata in whatever standard for learning objects is widely adopted (rather than expecting it to be presented in a MARC format).

[Government]

- Provide financial assistance for E-Learning programmes.
- Organize programmes to create E-Learning awareness to organizations and institutions so as to ginger them to join in the bandwagon of E-Learning.
- Ensure stable power supply so as to avoid interruptions in the course of E-Learning online classes.

From the recommendations given, the writer has proposed six laws (Sm²U²L) to govern E-Learning and libraries thus:

- **Save the time of the learner**-------- this is by making provision for a help desk
- **Master the E-Learning skills**--------learning how to navigate the E-Learning software
- **Make Learning interesting**--------include forums, class activities, blogs and wikis.
- **Update your lessons frequently**--------do that almost daily and keep your class alive
- **Upload current materials online**--------post most recent works online and send the old ones to the archives.
- **Link to relevant sites for daily update**---- integrate RSS (Real Simple Syndication) feeds into your LMS (Learning Management System) to keep track of events like news, schools online, scholarly journals online, etc.
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