

**Availability, Accessibility and Challenges of Electronic Learning Technology in Ladoke Akintola University of Technology, Ogbomoso, Oyo State of Nigeria**

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**Abstract**

*This study investigated the availability, accessibility and challenges associated with Electronic Learning (E-learning) in Ladoke Akintola University of Technology (LAUTECH), Ogbomoso, Oyo State of Nigeria. One hundred and fifty respondents (comprising staff and students) were used as the sample for the study. Interview and questionnaire were adopted as instruments for data collection, while the researchers used the Delphi study method for population's sampling. The data collected were analyzed using frequency distribution, percentage and regression analysis. The findings revealed the E-learning tools use in LAUTECH to include CD-ROM, Audio/Video Recorder, Computer-based Learning Tool, Web-based Learning Tool, Virtual Library, Electronic Classroom and Digital Collaborative Software Tool (Moodle). The study also revealed that lack of awareness, irrelevant content and lack of technical skills were some of the challenges confronting the proper implementation of E-learning in the institution. It was also discovered that there was no significant relationship between awareness and E-learning tools but there was a negative significant relationship existing between E-learning activities in LAUTECH and the identified challenges. The study concluded that there is no doubt that E-learning has come to stay in LAUTECH but the awareness level is low and some of the modern technology infrastructures and tools that facilitate collaborative interaction between students and lecturers have not been fully integrated. The study suggested procurement of adequate E-learning facilities and training of personnel so as to fully integrate E-learning in LAUTECH.*

**Keywords:** E-learning, Availability, Accessibility, Moodle, LAUTECH

**Introduction**

The ever-continuing growth in Nigeria's population, the attendant escalating demand for education at all levels, the difficulty of re-sourcing education through the conventional means (face-to-face classroom bound mode) and the compelling need to provide education for all (EFA) irrespective of environmental, social or cultural circumstances, meant that the country must of necessity find an appropriate and cost effective means of responding adequately to the huge unmet demand for education. All these emerging situations have signaled to the need for a comprehensive search for a more viable, robust, reliable, efficient, effective, and cost-beneficial educational solutions.

Efforts to introduce technologies in higher education must extend beyond technology transfer to consider what is known as effective innovation. Specifically, existing products need to be embedded into teaching and learning structures for students. Information and communication technology (ICT) initiatives must address critical factors which include cultural change, time for academics to transit from traditional teaching to teaching with technology, as well as staff development and training needs. Education is provided through formal and informal means. In formal setting, the conventional (face-to-face instruction) and distance education (offered with separation in terms of physical location of instructors and students) have been used to provide educational opportunities to recipients while informal setting involves, semi-structured learning which occurs in a variety of places, such as learning at home, work and through daily interactions and shared relationships among members of society.

However, according to Hassan (2010), two educational settings namely e-learning and face-to-face learning can complement one another for pedagogical application. Gunga (2010), referred to E-learning as an innovative approach for delivering electronically mediated, well-designed, learner-centered and interactive learning environments to anyone, anyplace, anytime by utilizing the internet and digital technologies in line with instructional design principles. Therefore, E-learning can be defined as a way of packaging educational programs with information and communication technologies (ICTs) with the aim of delivering it for the need of the prospective users via the electronic media which can be through the internet (online) or without the internet (offline). The technology used to facilitate E-learning is referred to as E-learning technology tools. Example of such technology are computer-based learning, electronic classroom, MP3 players, CD-ROM, websites, web 2.0 tools, collaborative software, e-mail, blogs, chats and learning management systems. According to Ifinedo (2006), higher education institutions across the world have been adopting ICTs in teaching and learning in an effort to create an environment for both students and their instructors to engage in collaborative learning and gain access to information. A few of the widely known LMSs are: Blackboard, WebCT, FirstClass, Moodle, Sakai, and Lotus Learning Space (<http://www.studymmentor.com/studymmentor/>).

### **Review of Related Literature**

Centre for Research on Learning and Teaching (2017), defined electronic learning as a learning activity facilitated primarily through the use of telecommunication technologies (ICTs) such as electronic mail, electronic bulletin board systems, chat, desktop videoconferencing, and the World Wide Web (Web). With the spread of eLearning, researchers have claimed that distance education requires specific instructional design strategies, interactions, and skills that correspond with the characteristics of particular distance learning programs and courses.

Likewise, Olaniyi (2006), defined e-learning technology as convergence of the learning process and the Internet, or Internet enabled learning. According to Olaniyi, the application and process of e-learning include computer-based learning, web-based learning, virtual library, electronic classroom and digital collaboration where contents is delivered via the internet, intranet/extranet, audio and or video tapes, satellite TV and CD-ROM (Islam 1997). E-learning is not a new phenomenon in promoting education in all parts of world. Presently, some institutions in Nigeria are using it to promote distance education (DE) and lifelong learning. In the same vein, Hedge, et

al (2004), also described it as an innovative approach for delivering electronically mediated, well-designed, learner-centered and interactive learning environment to anyone, anyplace, anytime by utilizing the Internet and digital technologies in accordance with instructional design principles.

According to Ifinedo (2006), efforts to introduce technologies in higher education must extend beyond technology transfer to consider what is known as effective innovation. Specifically, existing products need to be embedded into teaching and learning structures for students. ICT initiatives must address critical factors which include cultural change, time for academics to shift from traditional teaching to teaching with technology, as well as staff development and training needs. Fundamental change in the role of teachers in higher education institutions can result to good performances. It is critical to assess the current environment from various perspectives in order to implement an integrated strategy to facilitate successful diffusion of innovation in teaching and learning.

In Nigeria, the recent developments and awareness of the Government on ICT have opened several opportunities to adopt e-learning to deliver distance education as a means educating bulk of its uneducated or less educated peoples (Emmanuel, Ifeoma, Ekima & Jackson, 2013). As a result of the recent expansion of ICTs in the country, institutions of higher leanings could introduce some modern ICTs like e-mail, web-based learning (e.g. open course wares), CD-ROM for distributing its course materials to their learners.

Therefore, Gabadeen, Alabi, Akinnubi (2015) noted that E-learning often involves both out-of-classroom and in-classroom educational experiences via technology applications and processes such as web-based learning, computer-based learning, virtual education opportunities and digital collaboration. Content is delivered via the Internet, Intranet/Extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, video and audio streaming.

### **Revolutionary Development of E-Learning Educational System in Nigeria**

The history of E-learning in Nigeria dates back to the correspondence education as a means of preparing candidates for General Certificate in Education, a prerequisites for the London Matriculation Examination. The first indigenous distance learning programme was the English by Radio programme of Nigeria Broadcasting Corporation that followed independence in 1960 (Timothy, 2008; Helen, 2011 and Sabina, 2012). The programme was primarily targeted at primary and secondary school levels and covered core courses at both levels with more emphasis placed on the teaching and learning of Science, Mathematics and English Language. The technology driven e-learning came into existence almost the same time with the first indigenous distance learning with the emergent of Educational Television Programmes of the then National Television of Nigeria (NTV). There was also Schools Educational Broadcast of the Radio Nigeria stationed in Lagos and relayed all through the Federation. All radio stations were required to hook-up at specific times of the day during school hours for broadcasting of programmes.

Terande (2012) cited DFES (2003) that e-learning has the potential to revolutionized the way we teach and how we learn. Therefore, advances in e-learning have revolutionized higher education in many ways; for example, increasing access to post-secondary instruction, improving the availability of educational resources, and facilitating meaningful interaction among learners. Harnessing the power of e-learning has become a critical strategy among institutions eager to offer an affordable, efficient, and flexible learning environment for rapidly growing and diverse communities of learners.

Rich (2008) stated that many scholars have viewed distance and online education as alternative, sometimes inferior, education for individuals with limited access to traditional Higher Education Institutions (HEIs) or those not committed to deep learning. This assertion most of time is not true, basically the introduction of e-learning to educational system is to reduce pressure of studentship imposed on higher institutions. Timothy, et al (2008), discovered that ICTs in education in the developed countries facilitated the establishment of 100% ICT – based university known as Virtual Universities.

Here in Nigeria, very few of our conventional universities are now carrying out their academic activities through one form of ICT or the other, that include LAUTECH. While the urge to embark on e-learning, is still a dream to some universities, because their ICT infrastructure is very weak. According to Khan (1996), the rapid expansion of ICT in Nigeria offers an opportunity to consider its use in the promotion of e-learning. It offers students considerable benefits including increase access to learning opportunities, convenience of time, and place, making available a greater variety of learning resources, improve opportunities for individualized learning and emergence of more powerful cognitive tools.

### **E-Learning versus Distance Learning**

There can be some confusion between E-learning and distance learning since they overlap each other. E-learning refers to learning that is supported by the web. It can be done inside classrooms as a support to conventional teaching, such as when students work on the web at home, office or in the classroom. Ellis (2004) disagrees with authors like Nichols (2003) who define e-Learning as strictly being accessible using technological tools that are web-based, web-distributed, or web-capable. The belief that e-Learning not only covers content and instructional methods delivered via CD-ROM, the Internet or an Intranet. E-learning can be done in virtual classrooms, in which all coursework is done online and classes do not meet face-to-face.

Distance learning on the other hand, refers to learning situation in which teachers and students do not meet face-to-face. Emmanuel, et al (2013) defined distance Learning (DL) as a system of education characterized by physical separation between the teacher and the learner in which instruction is delivered through a variety of media including print and other ICTs to learner who may either have missed the opportunity earlier in life or have been denied the face-to-face formal education due to socio-economic, career, family and other circumstances. Jennifer, et al (2003), also described distance learning as a training that takes place largely synchronously; that is, the material is delivered to all participants at the same time even though participants are separated by

geographical distance. The learning can also occur asynchronously, whereby learners can always accessed missed interactions when convenient for them.

Today, the web provides a multimedia interactive environment for self-study. Therefore in both cases, webs enable the systems make knowledge accessible to those who need it, when they need it, anytime, anywhere. E-learning and distance learning can be useful both as an environment for facilitating learning at schools and as an environment for efficient and effective corporate training. It could be web-based learning, computer-based learning, or virtual classrooms and content delivery via e-networks, audio or video tape, video conferencing, CD-ROM, e-mails, wireless and mobile technology.

### **Electronic Learning in LAUTECH, Ogbomoso**

Ladoke Akintola University of Technology (LAUTECH), Ogbomoso, Oyo State, Nigeria was established in September, 1990 as Oyo State University of Technology, Ogbomoso. However, by the virtue of the creation of Osun State from the then Oyo State, the name of the University was changed to Ladoke Akintola University of Technology, Ogbomoso. The vision of the founding fathers of the Institution is to provide a solid foundation for the development of a sustainable educational platform for both indigenes of Oyo and Osun States as well as Nigeria in general.

Since inception, LAUTECH has been operating the conventional (face-to-face) mode as the platform for training its students, but due to technological advancement, astronomical number of admission seekers and the need to bring education to the door step of learners, the University deemed it necessary to establish the Open and Distance Learning Centre. The University secure license to operate as dual mode institution and academic activities in LAUTECH Open and Distance Learning Centre (LODLC) commenced in September, 2015 with only Computer Science Programme. The National Universities Commission (NUC) was very impressed with the Centre's avowed commitment and the use of ICT in disseminating knowledge to learners, that within a year of Computer Science program accreditation, three (3) additional courses, namely: BN.Sc Nursing Science, B.Sc Accounting and B.Sc Marketing were fully accredited.

Whereas, LAUTECH has operated the face to face model as the platform for training its undergraduate and graduate students, the belief that knowledge is not a finished product has driven the University to further its nest in the production of knowledge in the Open and Distance Learning mode to provide “learners the ability to fit learning around their lifestyles, effectively allowing even the busiest person to further a career and gain new qualifications.” In realising this, the institution has deployed available technologies to make learning easy and exciting for both tutors and students. As a dual mode University, LAUTECH recognise the fact that learning is not restricted by age or location. At LAUTECH, learning is a lifelong process; that takes place throughout life and in a range of situations.

In essence, LAUTECH electronic learning has become rooted because the University is among the pioneers that adopted the use of information communication technology tools for E-learning in Nigerian. The institution’s conventional and distance education are packaged and delivered via information and communication technologies (ICTs), that is, ICTs remain the vehicle for driving affordable, meaningful and qualitative learning experience for both faculty members as

well as the students. Adewoye (2011) observed that at LAUTECH ICTs were used for registration, teaching, examination processing, and deployment of assignment.

### **Scope of the study**

The scope of this study is Ladoke Akintola University of Technology, Ogbomosho and most specifically the Distance Learning Centre of the institution. Ladoke Akintola University of Technology (also known as LAUTECH) is a technical university located in Ogbomosho, Oyo State, Nigeria. The university currently enrolls 25,000 students and employs more than 3,000 staff. The main campus is the site of the university's administration, as well as home to six faculties and the post-graduate school. Fields of study include Pure and Applied Sciences, Health Sciences, Agricultural Sciences, Engineering and Technology, Environmental Sciences and Management Sciences.

### **Problem Statement**

In many ways, E-learning has made the learning more efficient and has improved learning systems in many institutions. However, E-learning is challenged with the problem of materials and human resource. It was observed that E-learning in LAUTECH is challenged by the new E-learning tools in terms of availability, accessibility and the use. It is against this background that the present study is carried out to determine the extent of availability, accessibility and prospect of E-learning in LAUTECH.

### **Objective of the study**

The main objective of this study is to explore E-learning technology tools in the Ladoke Akintola University of Technology (LAUTECH), Ogbomosho. The specific objectives are;

1. To ascertain the availability of E-learning process tools in the Ladoke Akintola University of Technology (LAUTECH), Ogbomosho;
2. To ascertain the accessibility of E-learning technology in LAUTECH, Ogbomosho; and
3. To access the prospects and challenges facing E-learning in LAUTECH, Ogbomosho.

### **Research Questions**

The key questions asked were the following:

- i. What are the E-learning process tools that are available and accessible for use in LAUTECH, Ogbomosho?
- ii. What are the prospects and challenges facing E-learning in LAUTECH, Ogbomosho?

### **Test of Hypotheses**

All the hypotheses were stated in null forms:

- i. **Ho1:** There is no significant relationship between awareness of E-learning by the respondents and E-learning process tools.

- ii. **Ho2:** There is no significant relationship between E-learning activities and problems encountered by the respondents.

### **Significance of the Study**

This study will be significant to the LAUTECH management as well as the students, because it will provide empirical evidence on the acceptance or otherwise of e-learning in LAUTECH and whether the e-learning has come to stay. This will assist the institution's management in reviewing existing e-learning technology tools' policy or formulate necessary policies on e-learning usage for its staff and students.

### **Methodology**

Survey research method was adopted for this study and based on the nature of the research topic, the instrument for data collection questionnaire and interview schedule. The questionnaire and interview methods were adopted because it is the fastest means of eliciting relevant information from many respondents. Data were collected from Information Technology (IT) personnel's, students, lecturers & communication officers. The researchers adopted the Delphi study method of sampling to select the required sample. The head of LAUTECH information and technology (L.I.C.T.) Unit, Head of Academic/Student Planning Unit as well as lecturers and students were sampled for interview. The researchers also observed the e-learning tools presently on ground in the course of visit to the I.C.T and Academic/Student Planning unit of Ladoke Akintola University of Technology Ogbomoso, Oyo State Nigeria. One hundred and sixty copies of the questionnaire were distributed among the students and staff of the institution but only one hundred and fifty was duly filled, returned and used for the analysis. The questionnaire mainly consists of close-ended and open-ended questions making it very friendly, hence easy to complete. In order to get the necessary information needed to answer the research questions and test the hypotheses, the responses obtained from the completed copies of the questionnaire were recorded and analyzed using the Statistical Package for Social Science (SPSS). Both descriptive and inferential statistics of frequency distributions, simple percentages and Simple Regression Analysis were used to analyze the data collected from the respondents.

**Findings**

**Table 1: Demographic Factors of the Respondents N = (150)**

Demographic Factors	RESPONDENTS			
	STUDENTS		STAFF	
	Freq	%	Freq	%
<b>Sex</b>				
Male	65	51.06	19	79.17
Female	61	48.04	05	20.83
Total	126	100	24	100
<b>Age (years)</b>				
11-20years	55	43.65	0	00.00
21-30 years	67	53.18	02	08.33
31-40years	04	03.17	08	33.33
41-50years	0	00.00	11	45.83
51-60years	0	00.00	02	08.33
61years above	0	00.00	01	04.18
Total	126	100	24	100
<b>Marital Status</b>				
Married	08	06.35	20	83.33
Single	116	92.16	02	08.33
Widowed	0	00.00	01	04.17
Divorced	2	01.59	01	04.17
Total	126	100	24	100
<b>Level of Education</b>				
First Degree	101	80.16	02	08.33
Master Degree	16	12.70	07	29.17
PhD	5	03.97	12	50.00
Others	4	03.17	03	12.50
Total	126	100	24	100

The result from Table 1 shows that there were more male students (51.59%) and male staff members (79.17%) than their female counterpart. Also, the students that aged between 21-30 have highest percentage of 53.18% and the staff members with age between 41-50 (45.83%). That staffs that were 61 years above had the lowest percentage of 4.18%. Students that were single had highest percentage of 92.06%. Among the staff, those that were married had the highest percentages of 83.33%. Also, 80.16% of students were enrolled for first degree and 12.70% of the students were enrolled for masters' degree. In case of staff, 50% had PhD qualifications and 29.17% of staff had masters' degree, while, 12.50% of staff members had other qualifications.



**Table 2: Availability of E-learning Process Tools**

Variables	SA		A		D		SD	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Computer-based Learning	91	60.7	43	28.7	12	8.0	4	2.7
Web-based Learning	72	48.0	63	42.0	12	8.0	3	2.0
Virtual Library	59	39.3	34	22.7	27	18.0	30	20.0
Electronic Classroom	59	39.3	46	30.7	24	16.0	21	14.0
Digital Collaborative Software (Moodle)	53	35.3	47	31.3	20	13.3	30	20.0
Audio and Video Tape	59	39.3	54	36.0	29	19.3	8	5.4
CD-ROM	84	56.0	30	20.0	20	13.33	16	10.67

Table 2 presents the distribution of respondents by the availability of e-learning process tools. 60.7% strongly agreed that computer-based learning process tools are available, while, 35.3% of the respondents strongly agreed with the availability of digital collaborative software. In addition, 56.0% strongly agreed with the availability of CD-ROM.

**Table 3: What type of E-Learning Process Tools is Accessible?**

Variables	Yes(%)	No(%)
What type of e-learning process tools is accessible?		
Computer-based Learning	85.0	15.0
Web-based Learning	71.6	28.4
Virtual Library	88.0	12.0
Electronic Classroom	64.0	36.0
Digital Collaborative Software (Moodle)	65.0	35.0
Audio and Video Tape	27.3	70.7
CD-ROM	76.0	24.0

Table 3 indicated that 85.0% of the respondents have access to computer-based learning, 88.0% have access to virtual library, while only 65.0% were able to access digital collaborative software (such as Moodle).

**Table 4: Challenges Militating Against E-Learning in LAUTECH**

Problems	Not a Problem		Serious Problem	
	Freq	%	Freq	%
Infrastructural problem	19	12.7	131	87.3
Awareness problem	109	72.7	41	27.3
Irrelevant content	108	72.0	42	28.0
Technical skill problem	109	72.7	41	27.3
Interest on learning	132	88.0	18	12.0
Literacy problem	118	78.7	32	21.3

The result from Table 4 revealed that ICTs infrastructure (87.3%) is the major challenge facing e-learning in LAUTECH. However, interest on learning with e-learning (88.0%), literacy (78.7%), awareness (72.7%), technical skill (72.7%), and irrelevant content (72.0%) are not seen as a major challenge confronting e-learning activities at LAUTECH. Areas of ICT use in service delivery as indicated by the respondent include: lecture delivery, examination processing and student registration. In the course of conducting the interviews, there were quite numbers of discoveries because the respondents were willing to accommodate and give all the information that were requested for, and these are parts of our findings which were listed and further discuss in this report.

**Table 5: Regression analysis result**

	Adjusted R Square	R	B	Sig. Level
<b>E-Learning Processing Tools (Dependent Variable)</b>				
<b>Predictor Variable</b>				
Awareness of E-Learning	0.0004	0.006	0.248	0.338
<b>Problems Encountered (Dependent Variable)</b>				
<b>Predictor Variable</b>				
E-Learning Activities	0.0027	0.047	-0.107	0.008

The results from Table 5 indicated that at  $p > 0.05$ , there is no significant relationship between awareness of e-learning and e-learning processing tools, ( $p = 0.338$ ,  $B = 0.248$ ). Hence, the null hypothesis is accepted. Also, at  $p < 0.05$ , there is a negative and significant relationship between e-learning activities and challenges encountered by the respondents, ( $p = 0.008$ ,  $B = -0.107$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.

### Discussions

E-Learning Technology is readily available in Ladoke Akintola University of Technology but not yet at its' peak compared to developed countries where students and lecturers engage in virtual interactions. The tools presently used in LAUTECH for e-learning are CD-ROM, audio/video recorder, computer-based learning, web-based learning, virtual library, electronic classroom and digital collaborative software (such as Moodle). The finding of this study is in line with the findings of Sabina (2012) and Helen (2011) on e-learning tools that were available. Only digital collaborative software (Moodle) was not much in used. LAUTECH distance education is presently moving towards e-learning platform which will further give opportunity for learning at any time of the day, attracts more working class, students and individuals at an affordable cost. Students and lecturers claims that all the available tools are accessible. It was verified from students that audio lectures & video lectures can be downloaded from *www.audiomath.com*, and lectures note are made available on CD-ROM which is readily accessible. It was revealed by the study that there is no relationship between respondents' awareness and e-learning processing tools.

The challenges militating against e-learning in LAUTECH are not unlike those experienced elsewhere. For example, the serious challenge identified is ICTs infrastructural. This support the finding of Ifinedo (2006) that innovation is complex and challenging within large organization such as universities that are part of a mass system of higher education. Due to very high primary cost of infrastructural development to increase public access to internet and other ICTs, the developing countries are still far behind from getting benefit from the e-learning technology. The other challenges facing the proper implementation of e-learning technology in LAUTECH are: awareness, irrelevant content and lack of technical skill. Therefore, there is a significant relationship between e-learning activities in LAUTECH and the problems mentioned above. In accordance with Adewoye, et al (2011), internet is used for teaching, registration, examination processing, and given of assignment these have positive impact on service delivery by the staff and students of LAUTECH. Therefore, e-learning technology has several advantages in promoting the activities of LAUTECH in learning and instructional delivery activities of the university. Some of the important prospects of e-learning are listed as follows: Students will learn what they need to learn and go at their own pace; It gives opportunity for learning at any time of the day, which further attracts working class; It also gives opportunity for those that have been denied education at their early stage and those that do not realised their potentials on time; and E-learning will provide students with the opportunity to make choices about the type and direction of their learning and gain feedback quickly and efficiently. This has the potential to cater for individual learning, styles and requirement for providing information about a topic.

## Conclusion

There is no doubt that e-learning has come to stay in the world of ours. The need to embrace it in our country is imperative for sustainable development. Although LAUTECH had put in place some functional e-learning technology tools and infrastructure, these is still inadequate compared to developed countries. E-learning is still a dream because none of the modern technology infrastructures and tools that facilitate collaborative interaction and rapid response between students and lecturers has been fully integrated into it in order to maximize its potentials. More so, e-learning goes beyond having lectures note on electronic format and downloading on-line, but the training of the personnel that will drive the e-learning technology for learning to really take place.

## Recommendations

From the findings of this study, the following are recommended:

1. LAUTECH open and distance learning centre should be provided with adequate funding, so as to be able to compete with their counterparts abroad;
2. Training and development of staff should be paramount in the institution about the latest e-learning tools;
3. There is a need for adequate power supply that can come in form of alternative power supply such solar and inverter as well as generating sets to complement existing and inadequate power supply;
4. The accreditation team of the National University Commission (NUC) as well as the National Board for Technical Education (NBTE) should revise the curriculum of the Nigerian University/polytechnics to include virtual courses that will be internet based.

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