

## UNDERGRADUATE STUDENTS' ACCESS AND UTILIZATION OF E-LEARNING TECHNOLOGIES IN AN AFRICAN UNIVERSITY

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### **Abstract**

*The inadequate provision of e-learning technologies has hindered adequate access to technologies in most universities in Nigeria; hence this study investigated the extent to which e-learning technologies are provided and used in Tai Solarin University of Education. The survey research design was adopted in this study. Four Departments was selected from the University, one from each of the colleges available in the University. 100 out of all the 400 Level students in the four sampled schools were randomly selected, that is, 25 from each of the four short listed Departments. The main instrument used for the data collection is a checklist type of questionnaire designated 'E-learning Technologies Access and Utilization Questionnaire (ETAUQ)'. The Cronbach alpha technique was used to validate the instrument. An exercise which yielded a reliability co-efficient of 0.87. The percentage was the statistic that was used to analyse the data. Results showed that the undergraduate students do not have adequate access to e-learning technologies. Their utilization rates were very low. Whenever the curriculum shifts to incorporate the use of e-learning facilities for teaching, these facilities will be grossly inadequate access. The University authority should initiate the review of all the curricula, as there is a need to incorporate the application of e-learning technologies to teaching and learning. The University should increase the number of hours from six hours to maybe 12 hours or even more. The University should also introduce those e-learning technologies that are not available for the students at all times. This will compel learners to improve their literacy and utilization levels.*

### **Background to the Study**

The electronic learning (e-learning) technology is being embraced all over the world. The global education community is faced with a unique

problem: that of acquisition of computer. This enables the learners to access the required literature from all over the world through the internet at a very low cost within a short period of time. There had been different types of learning technologies in existence for long. The traditional learning technologies include paper, audio, and video broadcast. Examples of traditional courses being offered using a variety of telecommunications methods (computer-based tele-conferencing, two way audio, video, satellite delivery, and electronic mail) have been discussed in the literature (Harasim, 1993; Hiltz, 1990; Rice-Lively, 1994; Schrum, 1992; Sproull and Kiesler, 1991). Results of studies have concluded that this form of education is effective for well motivated students. It is very clear that one should not simply take a traditional course and place it on any form of educational network (Wagner, 1993, Scrum, 1998).

The recent developments in network and communication technologies have provided the ability to learn through the on-line procedure. Many educational institutions provide on-line courses to large number of individuals. The manuals of these institutions and other publications provided by several scholars can be accessed through the internet. Even the laboratory resources can be accessed through the internet. As the number and types of on-line courses have grown, many educational institutions have expanded their programmes to include traditional and non-traditional courses, entirely or partially online and other entities are considering implementing such courses. For example, institutions are feeling particularly vulnerable because the advantage of location no longer ensures them a market based on geography. The institutions that offer MBA now must compete with the true giants in the field which offer that degree online.

Traditionally, the learning processes were usually conducted as independent experiences. The recent developments in technology and access have offered the opportunity to improve these environments through increased communication, interactivity among participants and incorporation of collaborative pedagogical models. Other advantages to using this type of learning process include;

- Access to and from geographically isolated communities
- Ultimate convenience, when and where you choose
- Ability to focus on participants' ideas, without knowledge of age, race, gender or background.

- Interaction with and among individuals from diverse cultures.
- Multiple and collaborative participation among widely dispersed individuals.
- Instantaneous (synchronous) and delayed (asynchronous) communication modes.

The characteristics of online courses was summarized by Harasim (1990) as place and time independent, many to many communication that fosters real collaborative learning and dependence on text-based communications to promote thoughtful and reflective commentary.

It has become clear that communication through technology has the potential to change the way in which people behave, according to Lea and Spears (1991). They identified a change in informal and formal talk, and individuals' loss of identity and de-individuation. Tatar, Foster and Bobrow suggest consideration for what group work really means. It is not just individual working at computers at the same time, but it means "giving participants the ability to judge when it is appropriate to overlap, just as they judge the efficacy" of adding verbal conversation (1991,pg.77). It is necessary that group members have support to learn and act out their roles in these situations (Olson & Bly, 1991).

The literature reports an increasing number of courses and delivered entirely or particularly through digital networks. Some of these courses are traditional subject matter courses, often undergraduate, while others are more geared to ongoing professional work activities. In some cases the technology is only a repository and merely holds materials (Boston, 1992, Schrum, 1995) and in others there is evidence that the technology itself assists in a paradigm shift so that it becomes the environment for learning (Dede, 1995).

Development of an online educational environment is not a trivial task. Wiesenbergs and Hutton (1996) identified three major challenges for the designer to consider; increased time for developing and delivering the course (they estimate two or three times what is necessary for a traditional course), creating a community online, and encouraging students to become independent learner: they also report interaction than expected from participants of an online course.

Reid and Woolf (1997) discussed the benefits of integrating online components into traditional classes, such as accessibility, heightened communication, access to worldwide resources, the potential for a student entered environment; learner control.

Heeren and Lewis (1997) suggest matching the media with the task, to keep lean media for tasks that do not require much interaction, for example, electronic mail, and reserve rich media for things that require more interaction and broader spectrum of activity (face to face).

Learners report greater control and responsibility towards their learning; students also find that the act of writing demands greater reflection than speaking (Harasim 1990, Rohfeld & Hiemstra, 1994). Several research and anecdotal studies have looked at online components of traditional courses and have come to the conclusion that these substantially increase the communication between the teacher and the students, and among the students, when compared with similar classes without the computer communication component (Hartman, Neuwirth, Kiesler, Sproull, Cochran, Palmquist, & Zubrow, 1994; Hiltz, 1990; Schrum, 1995; Schrum & Lamb, 1997).

Groupware is a new class of software that has contributed to the development of online learning. This name refers to software that supports and augments group work coined in the late 1980s. The term groupware has attained wide recognition because of a combination of the need for groups to work together more effectively and technical progress in networks and group supports products. Products considered groupware are still new enough that their long-term direction is unclear. What is clear however that is the downsizing and rapid organizational change of 1990s makes the effective operation of work groups an even more important competitive issue. Many groupware products are group-related tasks such as project management, scheduling meetings (“calendar”) and retrieving data from shared databases. Lotus Notes, a prominent product in the category, is designed as a system for sharing text and images, and contains a data structure that is a cross between a table oriented database and an outline. For example, a law firm in seattle uses Lotus Notes to permit everyone working on a particular case to have access to most current memos and other information about that case, even if they are travelling, Other companies use Lotus Notes to store and revise product information for sales-people selling industrial products,

thereby replacing the massive three-ring binders they formerly lugged around. Other groupware products focus primarily on the flow of working office settings. These provide tools for a particular multi-step task is managed, transferred, routed, Groupware is being used as a small transaction processing system for multi-step transactions. Yet other groupware systems are basically e-mail systems extended by classifying messages and using those Classifications to control the way messages are handled. For example a message classified "urgent" would appear first on the recipient's screen, and the system might highlight all unanswered messages classified "please respond" to make sure the responses occurred. However, most investigations have focused on those capabilities useful in business setting, particularly among collocated populations who used the software synchronously, often in group decision activities (Valacich, Dennis, & Nunamaker Jr, 1991).

The innovation of the internet facility or e-learning is a boost to Tai Solarin University of Education. Hence more and more university are embracing this technology with a view of providing a robust learning platform for learners, thus making learning easy for them. The Nigerian Universities are not left behind.

Tai Solarin University of Education, for instance, has embraced the e-learning technology. The university library has an e-learning class that can accommodate more than 20 users at a time. There is also an e-learning building where e-learning services are being provided to users. This building can accommodate more than 500 users at a time. This development is a challenge to both the teachers and learners, who have to catch up with new technology. In spite of this development, several learners still use the traditional learning technologies. Most of such learners stick to the traditional technologies on account of poverty, inability to operate the computer and ignorance. Some of these students cannot afford to pay for the user charges; a few are yet to acquire the computer literacy which they need for effective use of e-learning technology. The value of this technology is not known to all.

#### **Statement of the problem**

Inadequate provision of e-learning technology in Tai Solarin University of Education has hindered adequate access to the facility, and thus hampered individuals' utilization rates. Hence, this study investigated

the extent to which the e-learning technologies are provided and used in Tai Solarin University of Education.

### **Research Questions**

The following research questions would guide the study:

1. What are the different types of e-learning technologies available in the university?
2. What is the extent of availability of e-learning technologies?
3. How accessible are the available e-learning technologies?
4. What are the e-learning literacy levels of the learners?
5. What is the utilization rate of the e-learning technologies?

### **Review of relevant literature**

This section has the following sub-headings:

- (i) Learning theory
- (ii) Concept of e-learning technologies
- (iii) Access to e-learning technologies
- (iv) Utilization of e-learning technologies

### **Learning Theory**

The learning theory as discussed by Smith (1999) is used to illustrate this study. Smith made very helpful discussion of task-conscious or acquisition learning, and learning-conscious or formalized learning.

### **Learning as a product**

Learning is defined as a change in behaviour. In other words, learning is approached as an outcome - the end product of some process. It can be recognized or seen. This approach has the virtue of highlighting a crucial aspect of learning - change. The depth or nature of the changes involved is likely to be different. Smith (1999) present the following as possible perceptions of learning:

1. Learning as a quantitative increase in knowledge. Learning is acquiring information or 'knowing a lot'.
2. Learning as memorising. Learning is storing information that can be reproduced.
3. Learning as acquiring facts, skills, and methods that can be retained and used as necessary.

4. Learning as making sense or abstracting meaning. Learning involves relating parts of the subject matter to each other and to the real world.
5. Learning as interpreting and understanding reality in a different way. Learning involves comprehending the world by reinterpreting knowledge.

### **Conceptual forms of Learning**

In the five categories learning appears as a process - there is a concern with what happens when the learning takes place. In this way, learning could be thought of as 'a process by which behaviour changes as a result of experience' (Smith, 1999).

#### **(i) Task-conscious or acquisition learning**

Acquisition learning is seen as going on all the time. It is 'concrete, immediate and confined to a specific activity; it is not concerned with general principles' (Smith, 1999). Examples include much of the learning involved in parenting or with running a home.

#### **(ii) Learning-conscious or formalized learning**

Formalized learning arises from the process of facilitating learning. It is 'educative learning' rather than the accumulation of experience. To this extent there is a consciousness of learning - people are aware that the task they are engaged in entails learning. 'Learning itself is the task. What formalized learning does is to make learning more conscious in order to enhance it' (Smith, 1999). It involves guided episodes of learning.

When approached in this way it becomes clear that these contrasting ways of learning can appear in the same context. Both are present in schools. Both are present in families. It is possible to think of the mix of acquisition and formalized learning as forming a continuum.

### **Learning as a process - learning theory**

The focus on process obviously takes us into the realm of learning theories - ideas about how or why change occurs. Smith (1999) provides four different orientations of learning:

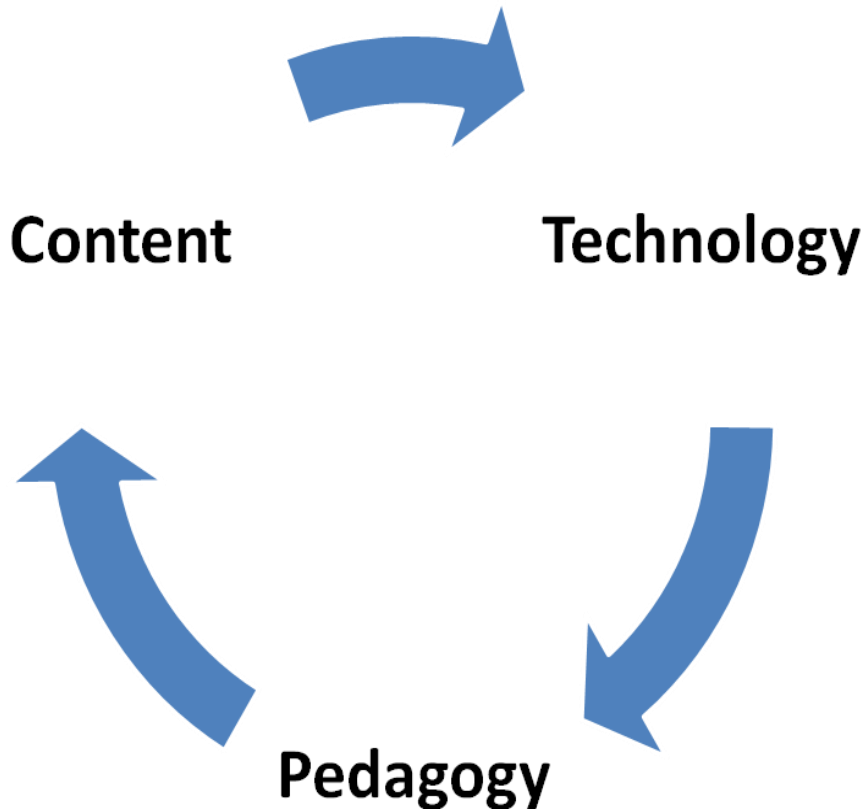
- 1) the behaviourist orientation to learning
- 2) the cognitive orientation to learning
- 3) the humanistic orientation to learning
- 4) the social/situational orientation to learning

As with any categorization of this sort the divisions are a bit arbitrary: there could be further additions and sub-divisions to the scheme, and there are various ways in which the orientations overlap and draw upon each other.

#### **Learning Context Model**

The learning context model of Fabunmi (2010) is adopted for this study. The modern day teacher ought to be in the control of learning situations at all times as he designs the content, technology and pedagogy. He needs to be versatile in ICT so as to attain quality teaching, gain new ideas (i.e. enrich his knowledge of the content) and play along with both technology and teaching.





**Figure I: Learning Context Model**

**Source:** Fabunmi (2010)

Surprisingly, some teachers fear one or two or even all of these three elements. More recently, some people fear the use of ICT in education; but such teachers fail to realize that the wall between arts and technology exists only in our minds, just as that between content and technology exists only in our minds. Practice the English people say makes perfection. Implicit in the electronic culture is the idea of participative and creative learning. If you see technology as a wicked problem, then give it wicked attention as wicked problems deserve creative solution. Figure I is used to illustrate the relationship amongst content, technology and pedagogy. For a successful teaching a teacher needs to master the subject matter (i.e. content), the pedagogy and the ICT technology to be used.

**Concept of e-learning technologies**

E- Learning is also referred to as online learning. It involves the use of the internet as a communication medium for acquisition of learning from distant sources. The e-learning makes the students who are not opportune to be able to learn. It also complements the learning resources of the students in regular schools. The common e-learning tools include discussion board, chat rooms, video streaming, document transfer, e-mail and other technological that can facilitate the educational process.

Different technologies have been used for online learning, a fact that makes it difficult to develop a genetic definition. Terms that are usually used include e-learning, disturbed learning, networked learning, internet learning, virtual learning, tele-learning, web- based learning, distance learning and computer assisted learning. All these terms imply that the learner is at a distance from the tutor or instructor, that the learner uses some form of technology (usually a computer to access the learning materials that the learners uses technology to interact with the learner uses technology to interact with the tutor or instructor and other learners, and that some form of support is provided to learners. This paper will use the term “online learning” throughout.

There are many definition of online learning that reflect the diversity of practice and associated technologies. Carliner (1999) defines online learning as education material that is presented on the computer. Khan (1997) defines online instruction as an innovative approach for delving instruction to a remote audience, using the web as a medium. Online learning involves more than just the presentation and delivery of the materials using the web. The learner and the learning process should be the focus of online learning.

Books are another aspect of life that we take for granted, but were invented and improved upon gradually. Ancient times saw the invention of written language. Later Papyrus and created a moveable medium for information storage and access. Information technology makes it possible to think of electronic books in fundamental ways. Merely transcribing a book such as this one onto a CD-ROM would make it easier to carry but would not change its essential character. A version of the same information designed as an electronic book stored on a CD-ROM or other device would be more like an information

system than a current book. The first CD-ROM was the first application of optical storage business processing. CD-ROM are compact disks that can be read, but not modified. They emerged in 1985 for publishing databases, directories, and encyclopaedias. CD-ROMs make huge amount of data readily transportable but are limited because the user cannot change data. CD-ROM is excellent for distributing large files of computer data ranging from software programs to technical manual.

The internet (Net) has been described as a “network” or as a “loose collection of related computer networks,” both which are accurate. In 1960s the U.S Department of Defence, and more specifically its advanced Research Projects Agency (ARPA), created an experimental network connecting computer over telephone lines. This experimental network developed into ARPA-Net, which allowed scientists, researchers, and military personnel at diverse sites to communicate using electronic mail or through real-time conversation. Although initially a system used almost exclusively by the defence department and academic researchers, it has evolved rapidly into a mass communication media that may significantly change the way many institutions make their learning plans. The internet has been described as the “last true frontier,” where anything goes. This has led to many important issues, ranging from the security of computers connected to the internet to consideration of the privacy of individuals using internet services. The capabilities of the internet continue to expand as new information technologies and applications are developed, raising even more operational, ethical, and societal issues.

Most people consider file transfer protocol (ftp) to be the “first generation” internet navigation technology, gopher the second and the World Wide Web (www, or the web) as the third. The web is the subset of the internet which uses a set of standard commands for defining objects such as text, sound, and images. Web browsers are software programs which enable the users to migrate from site to site on the Web, accessing the various text, sound, image objects. Using the hypertext (gives the web one of its compelling features: the ability to jump from one “page” or document to another. If you are viewing one document and you see a “hot” topic that interest you, the hypertext feature of the web enables you to jump to another document) and hypermedia link (gives the Web a second compelling feature: the ability to access rich information sources “sight and sounds” rather than just

text), a web user can access text, graphics, sound, still images, and full-motion video images. The Web originally was developed at CERN (the European Centre for Nuclear Research in Switzerland) to enable scientists to share research data. Because of the rich variety of information available on the web with web browsers, many internet users stick with the web and ignore other internet features. The most common Web browser is the Netscape, used by over 80 percent of internet users.

Computer security experts have battled computer hackers for decades; the Internet has added dimension to this battle. The variety of resources available on the Net has lured more and more individual and institution to connect to their computers to take opportunities present. But once connected, these computers become vulnerable to “hackers” or “crackers” (malicious hackers) who wish to damage information systems (for example, by spreading computer viruses) or who wish to steal.

The electronic mail (E-mail) which is part of the common e-learning tools is an innovation that may well revolutionize the office. The main function of the e-mail is to serve as centralized clearing house of electronic messages. The e-mail provides the ability to transmit written messages over short or long distances instantaneously through the use of a microcomputer. The people communicating through the e-mail do not have to be on-line at all times. The e-mail has the ability to forward messages to different locations, send word processor or spreadsheet documents to any of the network (i.e. user that has e-mail address too) and transmit the same message to more than one user by using the electronic mailbox addresses of people that message is sent to. The electronic mail system reads the names and addresses from the list and sends the messages to all users on the mail list. Electronic mail services improve corporate and individual communication significantly. Users can send documents or messages without having to wait for several days for the messages to be delivered. In addition an employee who is on a business trip can use a laptop computer to check any messages that may be in his or her electronic mailbox all this cannot happen without the electronic learning technologies which has changed the world at large. With the use of facsimile equipment and communication lines, it is possible to transmit copies of document to one or more location in a matter of minutes or even seconds. The e-

mail makes it possible for offices to transmit and receive documents without using postal services, which usually require several days. Facsimile devices also make it possible to leave messages for people in general, these devices reduces some of the communication bottlenecks so prevalent in many offices. Users have discovered that e-mail can give them a significant competitive edge if viewed (and implemented) as a 'distinctive competence'. The e-mail as an e-learning technology in Tai Solarin University of Education has really helps the students for searching on-line for documents which will be used to answer assignment given to the students as an assignment and even at times these answers to assignment will be sent back to the lecturer through the e-mail.

The video conferencing which is an electronic learning technology is a form of teleconferencing in which the participant can see the distant participants the least expensive forms of video conferencing use tiny cameras and 4-inch screens added to telephones or separate video conferencing windows displayed on computer screens. In typical business video conferencing, remote participants appear on a television screen. Video conferencing stimulate a face-to-face meeting without requiring unnecessary travel, which absorbs a lot of time and energy, not to speak of the cost of airplane and hotel bill. However the effectiveness of video conferencing decreases if the participant does not have a prior social bond. For example learning via video conferencing might seem tempting but might foster learning situation for the students and the society as a whole.

There is ongoing debate about whether it is the use of a particular delivery technology or the design of the instruction that improves learning (Clark, 2001; Kozma 2001). It has long been recognized that specialized delivery technology can provide efficient and timely access to learning materials; however, Clark (1983) has claimed that technologies are merely vehicles that deliver instruction but do not themselves influence student's achievement. Schramm (1997) suggested that learning is influenced more by the content and instructional strategy in the learning materials than by the type of technology used to deliver instruction.

According to Bonk and Reynolds (1997), to promote higher order thinking on the web online learning must create challenging activities that enables learners to link new information to old acquire

meaningful knowledge, and use their meta cognitive abilities; hence it is the instructional strategy and not the technology that influences the quality of learning. However; it is not the computer parse that makes students learn, but the design of the real life models and simulations, and the students' interaction with those models and simulations. The computer is merely the vehicle that provides the processing capacity and delivers the instruction to learners (Clark 2001).

Online learning allows for flexibility of access from anywhere and usually at anytime essentially, it allows participants to collapse time and space (Cole 2000) however, the learner5ing material must be designed properly to engage the learner and promote learning. According to Rosette (2002) online learning has many promises, but it takes commitment and resources, and it must be done right "doing is right" means that online learning materials must be designed properly, with the learners and learning in focus, and that adequate support suggested that online learning. Ring and Mathleux (2000) suggested that online learning should have high authenticity (i.e. students should learn in the context of the workplace), high interactivity and high collaboration.

#### **Access to e-learning technologies**

Access to e-learning technologies is capable of increasing access to knowledge and skills needed for both individuals, corporate, national and global development. Copper (1999) observed the rapid growth in e-learning, which is capable of expanding the learning opportunities of students with limited constraints or with marital or employment barriers. A wide range of socio-educational issues may reduce access to e-learning technology by poor and unemployed learner. The internet, and especially the World Wide Web portion of the internet, continues to see explosive growth in the content and the number of users. In addition to the typical user features, the internet is now being used for many commercial applications. As payment systems mature and users become more comfortable with the notion of doing business over the internet, this trend will most likely continue. There is no central body to govern or control the e-learning technologies; some access providers attempt to monitor usage to some extent, but in general, any attempts to develop usage guidelines or standards are voluntary.

**Utilization of e-learning technologies**

Many educational institutions are embracing the use of e-learning technologies to run their programmes. All forms of online manual can be accessed and utilized by learners through the internet. Blasara (1998) and Copper (1999) observed that due to the changing workplace environment and the requirement for continual employee learning, several working class adults seek for universities that offer course online, that is, using the e-learning technologies.

Neeley, Niemi and Ehrhard (1998) argued that e-learners possess certain proactive characteristics which make them to differ from the traditional age college students. Most of them are working class adults who can manage their time and resources well. They possess the ability to set and prioritize their goals (Neeley et al, 1998 and Connick 1999). Jeris, LaRoco and Kickul (2000) discovered that the use of e-learning technologies could assist students to achieve and attain multiple course learning goals and objective. Research has supported the notion that the use of computers in the education process promotes social interaction and academic achievement (Elliot, 1996). The quality of contact with students in the cyber-classroom is far superior to the standard classroom. Each student has the opportunity to correspond when he or she is ready; this creates an open non-restrictive atmosphere.

It is universally recognized that Information and Communication Technology (ICT) be utilized in education as we are now in era of globalization where information is received through satellite and internet connectivity. However in Nigeria, the utilization of ICT in education has been connected with many challenges such as financial conditions, standardization of hardware and software, the place of computer education in the Nigerian school systems, non-availability of facilities and equipment, inadequate skilled man power and software packages, other include less accessibility to the internet professional associations and organizations obligations. These challenges are not helping in maximizing the benefits that are derivable from the utilization of ICT in Nigeria educational system.

In order to utilize existing technologies to expand access to electronic information around the world thereby promoting learning and research activities of the university, Tai Solarin University of Education set up an E-learning centre for both lecturers and students.

Students go to this infrastructural building to register for the session on-line, print school receipt and check results with the use of scratch card. Lecturers and students go there to browse and for other academic expeditions. Patrons go to the E-learning centre to make use of the internet facilities. But does the student have full access to the e-learning technologies available in the university? How well does the student utilize these electronic facilities available?

### **Methodology**

This study adopted the survey research design. This design was used because it is an appropriate and efficient way of studying a large population as only a sample population will be used. The target population for this study was the undergraduate students of Tai Solarin University of Education, Ijagun, Ijebu-Ode, Ogun State Nigeria. The random sampling technique was used to select a department from each of the four schools, while the purposive sampling technique was adopted for the selection of 25 respondents from each of the four departments; thus, making a total of 100 respondents.

The main instrument used for data collection is a checklist type of questionnaire designated E-learning Technologies Access and Utilization Questionnaire (ETAUG). It comprises of four sections (A-D), section A sought for background information of the respondents, such as Age, sex, course of study, level, level of computer literacy and names of department, colleges. Section B elicited information on availability of e-learning technologies, while section C gathered information on learners' extent of access to e-learning technologies. Section D sought for data on learners' extent of utilization of e-learning technologies available in Tai Solarin University of Education. The research instrument was subjected to the appraisals of experts in test construction and the researcher's supervision. The corrections and suggestion were taken into consideration while making the final draft.

A pilot study was conducted to pre-test the instrument, in order to establish its consistency in measuring what it was designed to measure, using the test-retested method. The 400L students were used in the selected department used in each college. Five students from a department that was not used for the major study participated in the pilot study. The test scores of the pre-tests were correlated, using the Cronbach alpha. This exercise yielded a reliability coefficient of 0.87.



100 copies of the instruments were administered through one field assistant. The exercise took a period of one week to complete. The retrieved copies of the questionnaire were arranged according to the colleges before assigning numeric number to them. This is essential for the purposes of comparison and easy reference. The numeric values assigned to options in each item range from 0 to n

### Results and Discussion

This section is discussed under the research questions:

**Research question one;** What are the different types of e-learning technologies available in the university?

**Table 3: Available e-learning technologies.**

S/N	E-learning technologies	N	Those to whom available	%
1.	Internet	100	89	89.0
2.	E-learning	100	8	8.0
3.	CD-ROM	100	45	45.0
	Video conferencing	100	-	-
5.	E-journal	100	36	36.0
6.	On-line manual	100	45	45.0

Table 3 shows that most respondents agreed that e-learning technologies were available with the internet having a lead with 89 percent, while e-class had 8 percent. There was no video conferencing technology in Tai Solarin University of Education. This confirms the availability of different forms of e-learning technologies in the University, even though there is a need to improve the situation. Clark (2001) and Kozma (2001) emphasized the importance of e-learning

technologies particularly their ability to improve learning; hence the need to make them available to learners.

**Research Question two:** What is the extent of availability of e-learning technologies?

**Table 4: Extent of Availability of e-learning technologies**

S/N	E-learning technologies	N	Hours per week	Hours available	%
1.	Internet	100	3000	3000	100.0
2.	E-class	100	3000	250	8.3
3.	CD-ROM	100	3000	3000	100.0
4.	Video conferencing	-	-	-	-
5.	E-journal	100	3000	3000	100.0
6.	On-line manual	100	3000	3000	100.0

Table 4 reveals the extent to which the e-learning technologies were made available in the university. The internet, CD-ROM, e-journal, on-line manual e-learning technologies were made available, while e-class was only made available to students only on special occasions. The video conferencing is not even available for use at all in Tai Solarin University of Education. The most available ones were made available for six hours each working day (i.e  $6 \times 5 \times 100 = 3000$  hours). However the e-class was made available only on special occasions, hence it had 8.3 percent availability rate. Whenever the students have work on-line after the availability period (since it is not for twenty four hours) the students have to go as far as forty minutes drive to get to the nearest cyber-café. Rossete (2002) also emphasized the importance of e-learning technologies. Every effort should be made to improve the availability rate.

**Research Question Three:** How Accessible are the available e-learning technologies?

**Table 5: Accessibility of e-learning technologies.**

S /N	E-learning technologies	N	Hours per week	Hours available	%
1.	Internet	100	3000	3000	100.0
2.	E-class	100	3000	250	8.3
3.	CD-ROM	100	3000	3000	100.0
4.	Video conferencing	100	-	-	-
5.	E-journal	100	3000	3000	100.0
6.	On-line manual	100	3000	3000	100.0

Table 5 indicates that internet, CD-ROM, e-journal, and on-line manuals were more accessible than e-class that is only used on rare occasions while the video conferencing is not in existence at all. Private Cyber cafes that provide their services every time had only internet facilities, CD-ROM, e-journal and on-line manuals. Hence, they had only 100 percent accessibility rate while the E-class which were only provided when necessary had 8.3 percent; while video conferencing was not being provided in the university at all. Copper (1999) observed the rapid growth in e-learning technologies. This observation is true of developed world. Most developed countries are just introducing these technologies. O. Fathaigh (2001) had observed that a number of socio-educational issues may reduce access to e-learning technologies.

**Research Question Four:** What are the e-learning literacy levels of the learners?

**Table 6: Literacy level**

S/N	Literacy level	Respondents	Percentage of total
1.	High	25	25.0
2.	Average	62	62.0
3.	Low	13	13.0
	Total	100	100.0

Table 6 shows that 13 percent of the respondents had very low e-learning technologies literacy level. This is due to the fact that it has not being long the university introduced these technologies.

**Research Question Five:** What is the utilization rate of the e-learning technologies?

**Table 7: e-learning utilization rate**

S/N	E-learning technologies	N	Hours available per week	Hours used per week	%
2.	E-class	100	3000	39	15.6
3.	CD-ROM	100	3000	428	17.1
4.	Video conferencing	100	-	-	-
5.	E-journal	100	3000	154	6.2
6.	On-line manual	100	3000	212	8.5

Table 7 reveals the rate at which the respondents utilized e-learning technologies. The rates were generally low. Blasara (1998), Copper (1999) and Jeuis, la Rocco and Kickul (2000) discovered that the use of

e-learning technologies could assist students to achieve and attain multiple course learning goals objectives.

### **Conclusion and Recommendations**

The study established that the undergraduate students do not have adequate access to e-learning technologies. Their utilization rates were very low. Whenever the curriculum shifts to incorporate the use of e-learning facilities for teaching, these facilities will be grossly inadequate.

The University authority should initiate the review of all the curricula, as there is need to incorporate the application of e-learning technologies to teaching and learning. The university should increase the number of hours from six hours to 12 hours or even more. The university should also introduce those e-learning technologies not available for use like video conferencing. The e-class should be made available for the students at all times. This will compel learners to improve their literacy and utilization levels.

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