E-Learning Systems For Remediing Deficiencies In Teaching and Learning In Tertiary Institutions In West Africa

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ABSTRACT
The study investigated e-learning systems for remedying deficiencies in teaching and learning in tertiary institutions in West Africa. The modern technologies have engaged the attention of many today particularly the youth on the use of cell phones, laptops projection, flash drive, Video Compact Disk (VCD) and television. The propensity of information and communication technology (ICT) to education especially to the tertiary education. E-learning has made tertiary more accessible to all. E-learning platforms are of immense benefits to the teacher and students of tertiary education. The major constraints in e-learning adoption in tertiary institution range from human capital problem, institutional problem, and infrastructural challenge. The study recommended among others that tertiary institution management; state and federal levels in West Africa should treat teacher training and development with utmost seriousness and sincerity by organizing, seminars, workshops and symposia to equip them with knowledge, and competencies for e-learning adoption in classroom instruction.

Keywords: E-learning systems, learning and teaching deficiencies, e-learning, tertiary institutions.

INTRODUCTION
Computer has had a deep impact on the education sector, Barinem (2014) defines computer as an electronic device that accepts data as input, process the data in the processing unit, saves the processed data as RAM or ROM or give out result of the processed data as information through an output device like screen or printer.

Teachers and students use computer tools such as graphic, editors, database spread sheets or presentation packages to help in processing information, that these can assist the teachers to improve and enrich the presentation with beautiful graphics and tables which can be stored, easily updated and readily accessible for presentation that the presentation can be online or offline.

The modern technologies have engaged the attention of many today, particularly the youth on the use of cell phones, laptops projector, flash drive, Video Compact Disk (VCD) and television. The propensity of information age has propounded the relevance of information and communication technology (ICT) to education (Adebisi & Adebisi, 2016). The development of a nation starts through education therefore the use of ICT is a strong tool to equip the learners to learn objectively curiously and rationally.

E-learning involves the use and application of information and communication technology (ICT) as web sites, personal computers (PC), tablets, cellphones, learning management system (LMS), television (TV), radios and other means to improve teaching and learning processes (Gloria, 2015). Popescy (2018) sees E-learning as using electronic applications and process to learning. These applications and processes include web-based learning, computer-based learning, virtual classroom and digital collaboration. In the same vein, Chotechuang (2005) defines E-learning as an approach to teaching and learning that utilizes internet technologies to communicate and collaborate in an...
educational context. These includes technology that supplements traditional classroom training with web-based components and learning environments where the educational process is experienced online.

E-learning has gained a lot of popularity in this time. It is adding value in education and other organizational matters, like it is easy to access information, there is flexibility with respect to time and place. E-learning has completely transformed the way learning is imparted to students. The traditional talk chalk board method of teaching is giving way to the e-learning which makes learning simpler, easier and more effective. The use of virtual classroom for e-learning appears to be gaining prominence in developed countries and some developing countries. The use of e-learning in African higher institutions is regulated by a body known as the African Virtual University (AVU). AVU is a pan African organisation whose aim is to significantly increase access to quality use of information and communication technologies. It was founded in 1974 with its headquarters in Nairobi Kenya with a regional office in Dakar Senegal.

The objective of AVU is to assemble the various relevant Open Educational Resources (OER) initiatives under one single Open Educational Resources Open Educational Resources (OER) architectures aimed at facilitating and expanding the use of Open Educational Resources (OER) in Africa. The AVU has launched the multinational project in Nigeria at the University of Port Harcourt in the 3rd December 2014. Twenty One African countries benefited from this project which includes nine (9) from Francophone countries: Benin, Burkina Faso, Burundi, Cameroon, Democratic Republic of Congo, Mali, Mauritania, Niger, Senegal; four (3) Lusophone countries: Cape Verde, Guinea Bissau and Mozambique; and nine (9) Anglophone countries: Gambia, Ghana, Kenya, Namibia, Nigeria, Rwanda, South Sudan, Sudan, and Tanzania. Online education or e-learning is not new to Africa and many institutions, including the African Virtual University, have made university education from accredited schools available online since the late 90s. Countries such as Mauritius, Nigeria, Tanzania, Zambia and Zimbabwe have embraced the e-learning movement using various online instruction methods.

While traditional e-learning makes tertiary education more accessible, it can still be limiting due to high fees, and because courses are only opened at specific times of the year. As a result, students who intend to pursue specialized and flexible post-graduate education are now turning to open online courses.

According to Leach (2017) improving higher education is a complex challenge, but essential to the African continent’s development. Leach (2017) outlined fifteen steps to improve quality of higher education e-learning in West Africa. The steps are as follows:

West African’s universities should:

- Form collaboration among scientists in different universities
- Harness the potential of e-learning through massive open online courses (MOOCS).
- Stop neglecting Science, Technology, Engineering, Maths (STEM).
- And yet do not forget social sciences
- Invest in quality programme through curriculum review and updating.
- Redefine quality research which aims at high journal ranking.
- Make academics relevant to address challenges facing the continent.
- Link study in jobs to ensure the relevance of training.
- Acknowledge the problems of the countries. In West Africa, dishonesty, nepotism and corruption are a way of life.
- The universities in the continent should start innovation hubs. Incubation centres and centres of excellence should be established.
- West Africans should not copy out –of –date western models.
- Follow Ethiopia’s footsteps by making e-learning in higher education more relevant to local needs
- Work with the private sector
- Encourage students to direct their own learning.
- Convince government that universities are the route to development.

In order to facilitate distance learning, both students and teachers of the programme now consider the use of virtual classroom instructional delivery to manage the distance education programme.
Solomon (2009) point out that there is evidence that the mere introduction of virtual classroom in education leads to improved learning and result in change in educational practices. In addition to manage distance education through virtual classroom instructional delivery there were initial concerns that distance education might lower the quality of instruction. However, Bugaje (2007) states that its benefit is clear and demonstrable and it continues to gain acceptance. Belanger and Jordan (2004) state the important role in the introduction of virtual classroom education.

- Virtual classroom instructional delivery opens up new opportunities for student who might otherwise be excluded from participation in the learning process.
- It allows institution to educate a large number of students with relatively fewer instructors, thus providing a cost effective method of delivery higher education.
- Learner have the opportunity to pursue lifelong learning after graduation, regardless of style or location.
- Through the use of internet, student can take their lecture at home and any place.
- It reduces the movement of both the students and lecturers and cost of travelling from one place to the other lectures and examination will be minimal, ones’ work will not be at risk.

Online learning has been touted as a way to address some of the challenges higher education institutions face and extol as a tactic for staying competitive. Various external and internal forces have brought about the expansion and growth of online learning in higher education. External forces such as decreased state funding, tuition increases, technology costs and depressed economies have led to internal pressures to reduce costs and increase revenue in many higher education institutions. Combined, these stressors are influencing and changing the way faculty teach and students learn in higher education (Kuruvilla, Norton, Chalasani, & Gee, 2012). Academic leaders expect that online education will compensate for a decrease in traditional course offerings by saving costs and improving the effectiveness of learning (Allen, Seaman, Poulin, & Straut, 2016). However, in many universities, implementation and initiation of online education is still in experimental stages, such as combining the new ideas and advanced educational technologies of online education with existing methods (Hurron Consulting Group, 2014). The purpose of the study is e learning system as a tool for remediying deficiencies in tertiary institutions in West Africa.

**Benefits of E-Learning:**

**Student demand for e-learning**

E-learning platforms have immense benefits to undergraduate and graduate student, it allows students to paste assignment, short reading on their platform, it support students and teachers learning by facilitating reflection, questioning by self and others. It enables collaboration and provide context for engaging in higher order thinking, by sharing information and tips among learning. Floriello (2019) outline the advantages of e-learning to students.

- One can log-in and get cell blended learning courses on the world wide web environment.
- Student can learn independently at any time and place. E-learning is self-paced and the learning sessions are available all time.
- Students can customize the course material to meet their own needs. They have added control over their learning process and are able to better understand the subjects.
- E-learning gives support environment to all for all individual for learning methods.
- Student gets single central location for all course material.
- Students get a chance for enhanced exchange with other students and qualified teachers which are based on communication and information technologies.
- E-learning provides improved organization for regular students like meeting assignment deadlines, homework etc.
- Students can deal with teachers who are highly qualified, but cannot reach because of distance barriers, with e-learning they can give their inputs and help students in their research.
- Students have an option to choose what they like. It draws students to topics they like and enjoy.
Benefits of e Learning to Teachers
The didactic is the traditional method mainly involves lecturing, a method that is commonly used in the higher institution. This method involves verbal one-way presentation of ideas, concepts, generalization and facts. The teacher does most of the activities in form of talking and perhaps makes notes on the board for students to copy hence the method is referred as talk chalk method. The teacher as the key man in the instructional process can change from a dispenser of knowledge to a facilitator of learning through the use of e learning technique. Fioriello (2019) outlined the various advantages of e-learning to teachers as:

- The method of teaching becomes more interactive
- Teachers can prepare single document for different categories of students so that they need to produce it again and again.
- Timing is also flexible for teacher as they can do this with continuation to their regular classroom school.
- They can get more and more information on net that they embed in their course materials.
- Interaction with student becomes more appropriate with teacher since it not face to face they fearless and can ask their problem.

Other Benefits by E-Learning to the Teacher are as follows:

- **Covering of Syllabi/Course Content**: The use of the e learning saves the teacher the problem of not covering the course content. Since the learning is done online the teacher does the teaching of the various topic online the learner can access them anytime everywhere. In the case of national or institutional holiday lesson timetable are not alter. Teachers a locoparentis can decide to shift lectures due to some reasons affecting the student’s interest.

- **Variety of Method**: E-learning or e-classroom give the teacher the opportunity to use various instructional strategies to teach his lesson. The lecturer in the higher institution uses the lecture method only. The lecture method can be blended with other instructional strategies through the use of e learning.

- **Team Teaching**: Nwanekezi and Arokoju (2014) defines team teaching as a method where multiple teachers develop and present course material to class on the fact that each teacher has his/her own area of specialization, preference, content mastery, level of experience, resourcefulness, voice and ability to manage a class with a view of cross pollinate ideas, rob minds in other to improve students’ performance. These teaching done as a team can be placed online for these students, without the students discovering the area of weakness of the teacher. The students will not be disadvantaged on the areas where the teacher is incapacitated.

- **Adaptation to Modern Technology**: The use of e-learning makes the teacher to move with the time. E-learning has encouraged teachers to attend training and retraining in other to fit in to demands of emerging technology. A teacher that is not moving with the trend will become outdated, obsolete and handicapped.

- **Cost Effective**: E-learning is cost effective when compared to the traditional form of learning. The reduction in cost is due to learning through this mode happens quickly and easily. A lot of training time is reduced with respect to trainers’ travel, course materials and accommodation. The teacher and students can attend online training anywhere in world. E-conferencing is a new way of attending conferences. Participants can attend the conference anywhere in the world thereby reducing time and cost of conference.

- **Another major benefit of e learning is that it is Environmental Friendly**: E-learning is a paperless way of learning. It protects the environment to some extent. Gupta (2017) conducted a study on environmental friendliness of e-learning. It was found that e-learning courses and programme consumed around 90% less power generated and generated 85% less amount of CO₂ emission as compared to traditional campus-based educational courses. With e-learning, there is no need to cut trees for obtaining paper. E-learning is a highly eco-friendly way of learning. E-learning is in support of the green environmental revolution.
Growth and economic benefits

The rise of e-learning technology used by higher education institutions can be attributed to globalization. This is referring to political and economical phenomena, a worldwide integration of views, culture and products (Raghuram, 2013). The growth in the use of e-learning technology no doubt adds to globalization as educational institutions are trying their utmost to breakdown geographical and social boundaries to offer distance learning education, this leads to integrations of academic standards and views.

Advances in technology, infrastructure and transportation are major factors in the rapid pace of globalization. Globalization has been named to explain all sorts of effects such as reduction in household income, introduction of student fees, growth of international tourism and even the cutting of the public sector budget (Brown, 1999). Globalization can be further identified where the fusion of technology and the pace of globalization meet. This growth is spurred on by companies competing in national and international markets for profits that require technological advances over their competitors. Not only is technology used for industrial competitiveness but also collaborations, sharing of information and knowledge used by international organizations, governments, academic establishments, researchers and non-profit organizations. The rapid pace of advances in e-learning technology can no doubt be attributed to this force as institutions in UK are competing to gain more fee paying students without geographical boundaries and where institutions are trying their utmost to offer flexible education so age, academics background, experiences are not a hindrance to pursue academic studies. The rapid pace of embracing e-learning technology has ramifications on academic staff, it creates unwanted pressure and the results are hard to monitor whether e-learning technology is being used effectively (Clegg.et.al, 2003). Software and hardware companies involved in the creation of applications are always seeking advances to give them the edge over other software providers to gain profit and establish their brand name. The previous Labour Government in 1997 using the globalization argument to justify and encourage UK higher education institution to adopt ICT for learning. Since then, the Government agenda remains the same to push forward with technology to enhance learning (Fearon, 2013). Globalization has affected academic staff and student learning with increased use of networked medium and telecommunications for the purposes of flexible learning. In other words education has been globalized by computing technology (Zondiros, 2012)

Constraints to E-learning Adoption in Tertiary Institutions

Despite the numerous benefits of e-learning in education, its adoption in Nigerian tertiary institutions is faced with several setbacks: Ifinedo (2007) categorized the constraints to include:

- Human capital problems – These involve low literacy level, poor information technology skills and poverty.
- Institutional problems – These cover organizational problems, resistance, and lack of awareness.
- Infrastructural problems – These include poor internet access, low bandwidth, high cost of ICT services, inadequate investment in ICT by government and poor power generation.

Ekundayo and Ekundayo (2009) outlined the constraints to e-learning adoption in Nigerian tertiary institutions to include inadequate human resources, brain drain, staff-student ratio, lack of finance, poor infrastructural provision, electricity challenge, ICT and bandwidth constraints, highly bureaucratic management systems, digital divide and political instability. Gunga (2010) and Suleimann (2012) added to the above lists cost of laptops, software, poor liberalization of telecommunication market, poor licensing of internet service providers (ISPs) to use facilities to connect to the internet and boost bandwidth, high cost of permit to carry out internet café services, lack of training workshops, seminars and conferences on e-technologies for lecturers. Contributing, Adelekan (2013) and Ilechukwu (2013) mentioned high cost of e-learning hardware and other gadgets, dearth of skilled manpower for the implementation of e-learning and management of ICT infrastructure, inadequate initial lack of relevant competencies by lecturers, inadequate funding of education as well as high cost of installation and maintenance of relevant e-learning gadgets as some of the constraints to its adoption by lecturers.
Relating these constraints to online resources usage, Agber and Agwu (2013) noted high cost of access to online resources, non-subscription for relevant online resources by institutions and connectivity problems as constraints to e-learning adoption. The quality of learning outcomes is one of the primary issues in online learning. Many institutions do not have a consistent method for adequately evaluating and improving online courses and faculty teaching online. Another concern that academic leaders have in relation to the growth of online learning is the lower retention rates for online courses. At the national level, student retention in online courses is 8 percentage points lower than that of face-to-face instruction (Lokken & Mullins, 2014). 73.5 percent of academic leaders believe that lower retention rates in online courses are an “important” or a “very important” barrier. While most academic leaders have a positive perspective on online learning, there are several major concerns. These concerns include the need for student motivation and discipline in order to succeed in online courses; the quality of learning outcomes; and lower retention rates in online courses (Allen and Seaman, 2013). For 2012, 88.8 percent of academic leaders reported that students needed more discipline in order to succeed in online courses. Even though higher education institutions have made investments in faculty training, online learning environment, online degree programs and best practices development, online learning success for students has been a challenge, especially for first-time online students (Lokken & Mullins, 2014).

CONCLUSIONS
Online education enrollment in higher education has grown and will continue to grow, compensating for the decrease of traditional enrollment in higher education. A majority of academic leaders foresee online education as crucial for their institutional long-term strategy and as a promising way to save costs and improve the effectiveness of learning in higher education. However, there are still challenges for expansion and implementation — for instance, the tension between academic leaders and faculty members in the acceptance and implementation of online education. While academic leaders are very positive about online learning, some faculty remain skeptical about the effectiveness of learning outcomes, the value of online learning and a fair reward system for online teaching. Faculty with more exposure to online learning shows a more positive perspective about online learning in term so fits effectiveness and legitimacy. In addition, there is concern regarding institutional support for faculty who teach online. To ease these concerns, faculty development and support are necessary for the success of online learning. Consistent faculty training is key for improving faculty engagement and support for online teaching. It helps faculty become confident in their ability to teach successfully online and improve their courses by increasing their exposure to online learning environments. In addition, fair reward systems encourage faculty to get more actively involved in online learning. By reducing tensions between academic leaders and faculty, academic leaders can encourage faculty to implement quality online education and improve student learning and retention in online education.

It is evident that lack of competencies on the part of educators and societal factors constitutes great hindrance to adoption of e-learning in tertiary institutions. This implies that students are taught without effective utilization of e-learning components as challenges presented by these factors pose a clog in the wheel of effective teaching in an era of high-tech gadget usage and globalization.

RECOMMENDATIONS
From the conclusion drawn, the study recommends the following:
1. Tertiary institutions management at state and federal level in West Africa should treat teacher training and development with utmost seriousness and sincerity by organizing seminars, workshops and symposia to equip them with knowledge and competencies for e-learning adoption in classroom instruction.
2. Curriculum planners and policy makers should revisit the curriculum of educational programme as to incorporate electronic and information technology applications as to provide a wide range of tools to enable lecturers as well as students to become innovative, creative and resourceful in their activities.
3. Educators should strive to keep abreast of emerging electronic learning technologies and device valuable ways through which these technologies can be used to promote and enhance teaching.
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