

E-LEARNING: A KEY TO ACTUALIZING SUSTAINABLE EDUCATIONAL DEVELOPMENT IN AFRICA

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ABSTRACT

When discussing educational issues in Africa, one question that keeps ringing is, 'for how long will African countries be dragging their feet in achieving a stable and sustainable educational development?' No doubt, one of the hindrances to this is the problem of access to education. Achieving sustainable educational development implies providing educational access to both young and old, male and female, rural and urban people, able and physically-challenged, free and bond. It entails putting in place, an educational system guarded by a stable and continuous educational policy. More importantly, it means designing and implementing a type of education that is transferable to the future generation. Unarguably, sustainable educational development cannot be achieved without science and technology. This paper discusses one of the major keys (E-learning) that unlock the possibility of achieving sustainable educational development in Africa.

KEYWORDS: Educational Issues, Sustainable Educational Development, Science, Technology, Design, Implement, E-Learning

INTRODUCTION

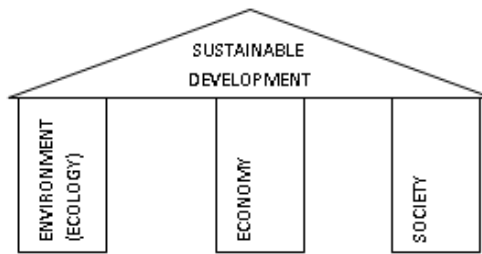
According to Zinaida Fadeeva (2009), the concept of sustainable development touches all aspects of the social and institutional fabric. In this sense sustainable development provides a way of putting into practice the overall social project and aim of development. Since the Earth Summit in 1992 in Rio de Janeiro, there has been increasing recognition of the critical role of education in promoting sustainable development. If other related international education initiatives look at education as a fundamental human right and focus on providing educational opportunities for everyone and reducing illiteracy, Education for Sustainable Development (ESD) focuses on the underlying principles and values conveyed through education and the content and purpose of education.

In recognition of the importance of ESD, the United Nations General Assembly adopted at its 58th Session in December 2002 a resolution to start the Decade of Education for Sustainable Development (DESD) which runs from 2005 to 2014, following the Johannesburg Plan of Implementation.



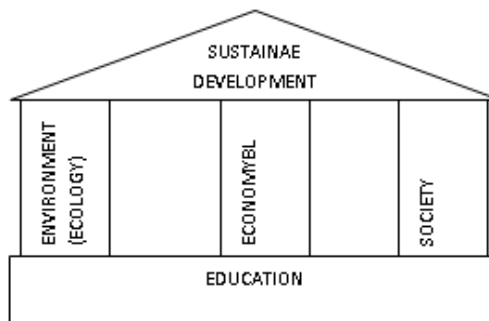
Source: Author
Figure 1: Model of a Typical Sustainable Development

The common module of sustainable development is hanged on three pillars, which are: Environment (Ecology), Economy and Society.



Source: Author
Figure 2: The Common Conceptual Model of Sustainable Development

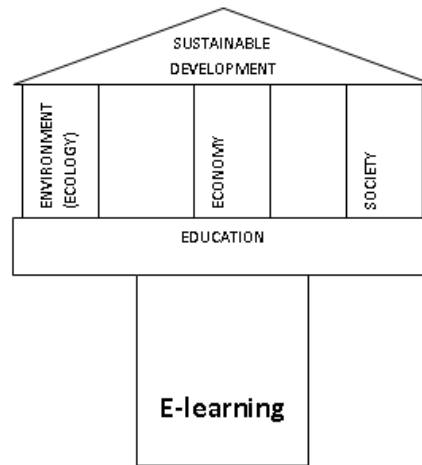
It was however argued that education tuned towards environment and sustainability should be understood as the common basis and the prerequisite foundation of the entire structure of sustainable development (Rio Conference on Environment and Development, 1992). There must be in place, an education which should combine specific components to enhance the learning about environment, economy and society, while it will permeate and change the entire Education for All towards Sustainability.



Source: Author
Figure 3: Education for Sustainable Development (ESD)

Having argued that Education should be the prerequisite foundation for Sustainable Development of the economy of any nation, what should be the type of education in place? In other word, what are the building tools for achieving or implementing a sustainable educational development?

With the development of the World Wide Web and advancement in internet usage, the need to have an enduring educational system that affects the environment, economy and the society at large requires the implementation of a technology-driven education system in an electronic form.



Source: Author

Figure 4: Proposed Platform for Sustainable Educational Development is Built on

As can be seen from the diagram, the sustainable development of the environment, economy and the society, have root in education. In turn, beneath the foundation (education), is a platform called E-learning (Electronic Learning); where education is deeply rooted on. This research work therefore looks at the deployment of e-learning as a form of education that brings sustainable educational development.

E-Learning

During a CBT (Computer Based Training) system seminar in Los Angeles in October 1999, a strange new word was used for the first time in the profession's environment. The new word was E-learning. The "E" in the E-learning stand for "Electronic" i.e. E-learning means Electronic learning which also implies learning through electronic means. It is term that is used to describe the use of the web and other internet technologies in term of enhancing teaching and learning experience. It shares similar characteristics of many other E-services such as E-commerce, E-banking, E-government etc.

As rightly put by the e-learning pioneer, Bernard Luskin, the 'E' should be interpreted to mean exciting, energetic, enthusiastic, emotional, extended, excellent, and educational, in addition to 'electronic', which is the traditional national interpretation. E-learning is a type of technology-supported education, where the medium of instruction is computer technology. It is used to define a specific mode of attending courses or programs of study where the students rarely, if ever, attend face-to-face campus activities.

E-learning is commonly referred to as the intentional use of network information and communication technology in teaching and learning. A number of other terms are used to describe this mode of teaching and learning and they include On-line learning, Virtual learning, Distributed learning, Network and Web based learning. Fundamentally, they all refer to educational process that utilizes information and communication technology to work with asynchronous as well as synchronous learning and teaching activities. However on a closer look, it will be clear that these labels refer to slightly different educational processes and as such cannot be used synonymously with the term E-learning.

The term E-learning therefore comprises a lot more than Online learning, Virtual learning, Distributed learning, Network or Web-based learning. E-learning therefore would incorporate all educational activities that are carried out by individual or groups working online or offline and synchronously or asynchronously via network and standalone computer and other electronic devices.

E-learning is the term used to describe the use of the web and other internet technologies in terms of enhancing teaching and learning experience. During the latest period of time, E-learning has become one of the most interesting trends in computer science-based education. It is based on information and communication technology and provides integrated learning service anytime and anyplace.

In stressing the importance of E-learning in education sustenance, Baroque (2007) states that E-learning is a technology-based in which learning material is delivered electronically to remote learner via a computer network. Wikipedia (2011) stressed further by describing E-learning as comprising of all forms of electronically supported learning and teaching. The information and communication systems, either networked or not, serve as specific media to implement the learning process. Macmillan Online Dictionary on its side, gives a shorter and general definition of E-learning as a method of learning that involves the use of computer and the internet.

If truly we are craving and yearning for an equitable, enduring, and enterprising education that is suitable to be hand-down to the coming generation, we should be looking at the adoption and implementation of an e-learning educational system.

E-learning can be defined mathematically as

$$EL = ED - DB$$

Where

$$EL = \text{E-Learning}$$

$$ED = \text{Education}$$

$$DB = \text{Distance/Disability Barrier}$$

E-learning can also be considered as

- A form of educational system that create a 'near-me' educational institution.
- An online degree granting educational setup.
- An educational structure that offers curriculum enrichment in a non-traditional educational setting.

The establishment of the British Open University in the United Kingdom in 1969, marked the beginning of the use of technology to supplement print-based instruction through well-designed courses. In the developing world, since the 1950's, the population has doubled to over 5 billion people, most of whom want to be literate and want greater educational opportunities for themselves and their children. The majority of this expanding population is in Asia and Africa, where there are massive problems of poverty, illiteracy and disease. The birth of the Internet and the evolution of the World Wide Web, as well as new cost effective technologies however, paved way for the evolvement of E-learning educational system.

Call it E-learning or call it On line-Education, the benefits it offers are tremendous. Amongst these are:

- It eliminates distance barrier that debar people from getting qualitative education from institution of their choice.
- It offers life-long learning potential to working adults and plays significant part in educating societies around the world.

- It allows for independent learning by working adults.
- It offers great accessibility for students with disabilities.
- It increases literacy level.
- It facilitates economic growth throughout the world.
- Different educational programs can be run by learners at different institutions, thereby developing learners' skills and intellects.

Little wonder many countries of the world are establishing online learning institutions after the establishment of UK's National Open University in 1969. Before the coming in of E-learning education, correspondence-based and traditional distance education systems have taken their toll as a better choice to conventional education. However, the betterment of E-learning education compare to these two, is responsible for the recent attention it's gaining. Some of these are highlighted thus:

- **Risk Reduction:** E-learning allows people to avoid traveling, thereby consequently, reducing risk of life. Unlike in traditional distance education (satellite/outreaches) where learners move from one location to another, especially during the period of final examination, E-learning education prevents the risk involved with the availability of online assessment test and examination.
- **Accessibility and Affordability:** Instructors of various calibers can share their knowledge across borders, thereby, allowing learners to attend courses across physical, political, and economic boundaries. Experts have the opportunity of making information available internationally, to anyone interested at little or no cost. This drastically reduced the cost of education, making it much more affordable and accessible to the masses.
- **Access Availability:** Learners always have access to a potentially huge library of training/courses and information, whether they are working from home, in the office, or from a hotel room. Access is available anytime, anywhere, around the globe.
- **Tracking is Made Easy:** Because learners complete their training while they are connected to the network, it is easy to implement a powerful learner-tracking system. Unlike in correspondence-based education that requires learners to print report or save scores to disk, E-learning educational technology enables the data to be automatically tracked on the server-computer.
- **Content Updating:** In today's fast-paced business environment, training/course programs frequently change. In correspondence-based and traditional distance education systems, the media must be reduplicated and distributed again to all learners. With E-learning system, it is a simple matter of copying the updated files from the local developer's computer onto the server-computer. The next time learners got connected to the educational site, the newest version of the information is made available.

E-You/E-Yourself

We have heard of many of the development of Electronic (E) systems such as E-commerce, E-payment and the subject of this paper, E-learning; all evolving as a result of the birth of the internet, the evolution of the world wide web, and the development of the new cost effective information and communication technologies. Here, the researcher

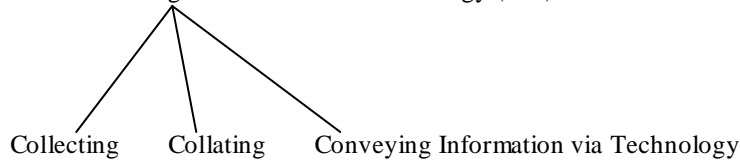
introduces E-You. E-You (Enlighten-You / Enlighten-Yourself) can be regarded as a process of self-development/acquisition of ICT knowledge and skills. According to AJAYI, O. O. (2009), ICT can be regarded as a technological means of collecting (inputting), collating (processing), and conveying (outputting) information via technology. He further described it thus:

ICT \Leftrightarrow CIT

That is,

Information and Communication Technology (ICT) can be described as

Communicating Information via Technology (CIT)



For E-learning form of education to be appreciated, the development and acquisition of ICT knowledge and skills must be taken down to the grassroots; thereby, making it an ICT affairs for all. The same way we introduce our kids to learning through TV cartons, let's also introduce them, even at early age, to academic learning through computer multimedia instructional programs e.g. Encarta Kids etc. By this, we are encouraging early acquisition of ICT skills and knowledge, and consequently, promoting E-learning. On the part of adult learners, there should be a thirst and strive to develop self in the use of various information and communication technologies. It is worth knowing, that, most of educational instructors (teachers), who can be regarded as facilitators, in higher institutions of learning, are computer illiterates. Romans 10:14c says, '... and how shall they hear without a preacher'. It would be very difficult for learners to adapt to and appreciate E-learning education system if the instructors (conveyers) are not knowledgeable of the use of the medium of instruction.

ICT cannot function in isolation; enabling environment has to be created. This is where government roles surface. Among these are:

- **Long-Term National Strategies:** This provides a degree of continuity and focus in the formulated and adopted national ICT strategies, which is mostly appreciated in countries where political instability and frequent changes of government is common.
- **Low-Cost ICT Applications:** Emphasis has suggested that focus on development of ICT applications should be such that put the poor into consideration.
- **Pro-Poor Focus:** This ensures that low-income households, cultural minorities and peri-urban and rural areas are not excluded, as the nation's ICT infrastructure evolves.
- **Availability and Affordability of ICT Facilities:** Government and development partners should do everything at their disposal to make available to the common man, ICT infrastructures and facilities. Imagine finding ourselves in a position where at every room in a street, there is a computer system and internet facility! Learners from poor homes have access to lecture materials, questions bank, search for information about schools, faculties, departments, courses etc. What a tremendous teaching and learning arena that would be!

CAUTION AND ATTENTION

Bowers (1998, p.113) noted that in education, computers modify thought and communication; the development that requires huge economic outlays to put libraries online and for Professors to research and to teach online. He stressed that students, in turn, “must be consumers of technology that will require an endless series of upgrades to feed the industry’s need to increase its share of the market”. The message here is that, not all ICT interventions are appropriate for every condition. Thus, we must be weary of “one size fits all solutions” as most innovations could be driven purely by the profit maximization on the part of their producers.

In addition, personal research shows that, many online institutions and conventional institutions that run on-line, do not, on their sites, make provision for some vital resource module like course materials and questions bank. What is commonly found on most of these websites are information about the institution, visit us, application for admission, requirement information, admission status, registration etc. This vividly shows the wrong usage and application of E-learning. It revealed that our development and application of E-learning educational system is self-profit making driven and not for poverty and illiteracy eradication.

A closer caution and call to attention is the issue of online resource adulteration and exploitation. Researchers and students nowadays violated the copyright rule while exploring the benefits offered by Internet and Online resources. Also, online educational resources providers, instead of relieving the poor researchers and students, are afflicting with online payment vouchers/subscription terms, for virtually all modules visited in the website. If we are agitating for education for all, shouldn’t we embrace properly planned and coded (designed) E-learning educational system, and see it as an avenue of creating an accessible and affordable education, rather than money-making venture?

CONCLUSIONS AND RECOMMENDATIONS

The internet is fast becoming an everyday tool for life activities. E-learning which include the use of internet for teaching and learning is becoming a normal extension. Significantly, E-learning has progressed through the years from VHS videotapes that were sent through the mail to elaborate synchronous online meeting tools through the internet. Now the response time is much quicker, results are tabulated faster and learner gets through materials at rapid pace.

By its design, e-learning educational system is to promote interactive and individualize learning, and also to aid affordable and accessible education. E-learning educational system, if embraced, can serves as a catalyst that facilitates the sustenance of educational development in Africa. It is a form of education that can be spread and made available to people both at the deep and the shallow, at the rural and the urban areas, to the poor and the rich, the male and the female.

In a world where selfishness and marginalization is the order of the day in the political sector, we, in the educational sector, cannot but welcome an appropriately planned, designed and implemented E-learning educational system that provides accessibility and affordability for both the low and the high in the society. It is therefore highly recommended that the African governments of the day adjust their policies such that e-learning form of education is embraced and if possible, made compulsory in all secondary and tertiary learning institutions.

REFERENCES

1. Ajayi, O. O. (2009). E-learning: A shorter, safer and surer route to reaching the education for all destination. Journal of Science and Technical Education, Adekunle Ajasin University, Akungba. vol. 1. No. 1. pp. 138-145.

2. Bowers, C. A. (1998). "The Paradox of Technology: What's Gained and Lost?". The NEA Higher Education Journal, Spring.
3. Jonassen, D., Peck, D., Wilson, B., & Pfeiffer, W. (1999). Learning with technology: A constructivist perspective. Upper Saddle River, NJ: Merrill.
4. Julian, S., Philip, P. and Vidgen, R. (2004)"*E-learning: planned and emergent strategies*". Paper presented at the 12th European Conference on Information Systems, Turku School of Economics and Business Administration, Tuku Finland.
5. Kearsley, G. & Marquardt, M. J. (1999). "*Technology-Based Learning: maximizing human performance and corporate success*". Boca Raton, FL: CRC Press LLC.
6. Naidu, S. (2003). *E-Learning: A Guidebook of Principles, Procedures and Practices*. New Delhi, India
7. Rosenberg, M. J. (2001), *E-learning: Strategies for delivering knowledge in the digital age*. New York: McGraw-Hill.
8. Rossett, A. (ed.) (2002). *The ASTD E-Learning Handbook*. New York: McGraw-Hill
9. Scheuermann, F., Reich, K.: *E-learning in Austrian SMEs*. Innsbruck, 2002. In press.
10. www.wikipedia.com