

Issues of E-Learning in Developing Countries: A Nigerian Perspective

Balogun Naeem Atanda, Abd Rahman Ahlan

Department of Information Systems
International Islamic University Malaysia
Malaysia

neembaloo@yahoo.com, arahman@iium.edu.my

Abstract- This study aims to highlight the existing issues of e-learning in the developing country such as Nigeria. As e-learning becomes important in the delivery of education with less consideration for distance, time and cost, however, it is still a dream in some part of the world as some issues are presently unavoidable and rendered this important aspect of knowledge gain a less resourceful in Nigeria as a developing country. Issues such as computer ownership, internet access, epileptic electricity and internet experience are highlighted to have hindered e-learning. This study considered only Nigeria as a developing country; hence having the highest number of internet users in Africa.

Keywords – *e-learning, developing countries, issues, Nigeria*

I. INTRODUCTION

The evolution of this new way of learning in today's environment is overwhelmingly increasing. The method to which people learn is gradually changing. The trend which technology had introduced in the field of learning had made many individuals a life-long learners rather than fix-time learners. E-learning, as it was crown is observed to have different dimensions depending on perception of the knowledge acquisition. Acquisition and transfer of knowledge in eLearning can either be formal or informal.

According to [1], informal learning is said to be learning that takes place outside classroom boundaries, and learners acquiring personal and relevant knowledge that helps in their job. In the work of [2], it describe the informal learning as that, which the learner is motivated by a certain personal goal or self-directed learning without the award of degree or certificate in the certificate-awarding institution such as schools, colleges and universities. And formal learning is described by [2] as that which degrees and certificates are awarded after a successful completion of a structured and timely managed program which takes place between a teacher/tutor and a student.

According to [3] eLearning is learner-centred teaching approach that constitutes mainly self-learning. In 2007, [4] also describe eLearning as an "electronically mediated interaction". This study defines E-learning as the acquisition of knowledge and bridging the gap between the students and tutors, distance, time and finance with the aid of technology. Therefore, this acquisition of knowledge is of paramount importance to Muslims, and [5] Prophet Muhammad (SAW) said, "To seek knowledge is obligatory upon all Muslims (both the male and female)." And also in [6], the Prophet said, "Whoever seeks a way to acquire knowledge Allah will make easy his way to

Paradise". With e-learning, distance can be eliminated, time saved and cost reduced, however, this technology is hindered by environmental factor which categorized countries based on its development. Perhaps, the developing countries are seen to lack behind in this technological era, hence Nigeria is not left out.

II. THE TREND

Nigeria, an OIC member country, a developing country, with population of close to 170 million people and almost 60 percent of the population are Muslims. More than 100 million as Muslim populace, mostly in the Northern and the South Western part of the country, are seen to lack behind in the educational trend.

To deal with this overwhelming population of knowledge seekers, some higher institutions adopted Information Technology in learning or some form of electronic learning practice to engage all students, lecturers and administration online in order to cater for the needs of the students and reduced the burden on the staff and the administration.

Nevertheless, the rate of illiteracy is still high and the need to create a knowledge community is important. In 2008 [7] proposed eLearning system in education as a possible way of solving this problem and can help developing countries to meet development challenges.

An eLearning with less cost and flexible learning could improve the performance of knowledge seekers and later provide job placement. While e-learning provides alternative awareness for those who cannot be accommodated in the conventional institutions of higher learning, its implementation is not an automatic success [8].

The introduction of e-learning seems to be solution to the knowledge seekers by acquiring different type of knowledge with less consideration for distance, time and the cost, through the establishment of Open and Distance Learning Centres across Nigeria. However, some factors are found to hinder this chance of gaining knowledge. These factors are identified as lack of computer ownership, lack of internet access, epileptic electricity and internet experience.

III. THE ISSUES

Knowledge seekers or learners could be faced with certain issues that hinder their ability to gain knowledge through the e-learning. Developing countries are known to be faced with tremendous problems regarding infrastructure in order to have access to learning facilities

and developed countries faced with digital divide. Lack of these infrastructures in Africa seems to be on high side when compared with other parts of the world. Perhaps, personally lacking these infrastructures might go a long way to hinder learners by not achieving their eLearning goal. Internet experience such as searching information and other online activities could be a factor that influences perception of adaption of an e-activity [9] and also found to moderate users' intention [10]. Factors identified in this study that could hinder successful eLearning could be seen to interrelate with one another, such as epileptic electricity supply, computer ownership, internet access, and internet experience. These factors are discussed in the following sub-sections.

A. Computer ownership

Computer ownership refers to learners' possession of personal computer for study or other activities. This computing device could be a smart phone, personal digital assistant (PDA), palmtop computer, laptop, or a desktop. According to [11] in 2013, her report on BBC News education identified that lack of computer ownership which can be associated to poverty also causes poor performance at school. Students who happen to have computer at home and use it for study perform better in school compare to those who do not have. In [12], he highlighted that motivation to own a computer increases fast largely due to, technological diffusion in the society. In the context of Nigeria, peoples' ownership of computer device is less, while the use of mobile phone (not smart phone) had increased in a considerable number.

A study was conducted in Ghana and [13] found that 65.5 percent of his respondents, who happened to be students in university, own a computer system. This shows that students are still lagging behind in possessing owned computers. More than 34 percent are still not having computer among the students, and this could be a large number, when studying the non-university students who do not consider having a computer to be a factor for studying, hence the creation of knowledge community through e-learning could be problematic.

In [13] however, a study found relationship between computer ownership and frequency of internet usage. In another British study, [14] found a significant positive association between computer ownership and higher performance in examination. These indicate that owning a computer and using it will boost the students' know-how in its usage for reading, doing assignment and be satisfied with its utilization during examination. China, whose population is more than that of the entire Africa as a continent, an empirical study in China [15] that used 459 respondents, found 70.37 percent to own a computer, 30.93 percent to be male and more 70 percent of the respondents are within the age of 18-30. More than 68 percent are employed and 67.76 percent live in the urban area while, 78.86 percent have more than one year internet experience. This study showed the vast ownership of computer, and the young individuals been the majority of the owners, these individuals are the schooling age groups. These shows the growth in the number of computer ownership and which can give a good opportunity for e-learning study. In [15], computer ownership was also found to relate significantly with age, marital status, education, income, residential area, internet experiences

and online frequency and not related to gender and employment. However, in African study [16], poor connectivity infrastructure results to lack of sufficient access to Personal Computer.

B. Internet access

Internet access in this study is the ability for the learner to have personal internet connection and make use of the web through a computer system or smart mobile devices continuously. In Table I, according to [17], Africa made 7 percent of internet users in the world; this is ridiculously low compare to that of Asia and Europe having 44.8 percent and 21.5 percent respectively. Hence, Nigeria is having the largest internet users in Africa with 28.9 percent however, the internet access is low and not constant.

As in [11] the study identified that lack of internet access by students in their households due to poverty causes poor performance at school. As in [7] the study found that students faced problem of internet access in the developing countries. Low penetration and low access to internet according to [18] may be due to developing countries' regulation. When technology spread largely in a society the motivation to have a computer and get internet access increases fast [12]. This means that student in their post-primary institutions would have tried to have their personal computer or mobile device as well as access to internet, however, little do these students know that internet access will be an essential commodity.

TABLE I. WORLD INTERNET USERS AND POPULATION

World Internet Users and Population Statistics as at June 30, 2012			
<i>World Regions</i>	<i>Population (2012 Est.)</i>	<i>Internet Users</i>	<i>Users %</i>
Africa	1,073,380,925	167,335,676	7.00%
Asia	3,922,066,987	1,076,681,059	44.80%
Europe	820,918,446	518,512,109	21.50%
Middle East	223,608,203	90,000,455	3.70%
North America	348,280,154	273,785,413	11.40%
Latin America /Caribbean	593,688,638	254,915,745	10.60%
Oceania/Australia	35,903,569	24,287,919	1.00%
WORLD TOTAL	7,017,846,922	2,405,518,376	100.00%

Source: Internet World Stats -www.internetworldstats.com/stats.htm

As its price is unaffordable in a community that feed on less than a dollar per day, as cost is considered to be a binding constraint [16]. In this African study [16] that uses empirical evidence, indicates that, at regional level, Sub-Saharan African nations' internet adoption had rose from 0.1 percent in 1998 to 0.4 percent in 2000. These low access to internet might be due to the huge amount of the internet services cost which is found to be seven times the amount spend to gain access in the United States of America [16].

Learners having access to internet can search for information online and easily adapt to online learning environment which also shows flexibility in terms of learning methodology and pedagogy approaches [7].

Therefore, access to internet may assist learners in successful study and acquiring more knowledge while lack of constant access to internet can cause educational disadvantage and learners missing out both educationally and socially.

C. Epileptic electricity

This refers to the unstable supply of electricity by the government normal supply through the national grid. Electricity had been one of the major problems in Nigeria, it had crippled the industrialization and rendered many hand-on work useless. Many industries had stop functioning due to lack of electricity supply and quit a number of companies, industries and government parastatals had rely solemnly by providing their electricity supply through different means, and is costing these organisations a huge amount. Populace who rely so much on this government supply of electricity have little or nothing to do without the supply of electricity. Many students find it difficult to study and sometimes result to the use of lantern, and the means to use any form of electronic material to study became abortive. Electricity had become a crippling agent for the actualization of e-learning in Nigeria, as most of the devices to be use, need electricity and lack of electricity had made these device fruitless for the students.

In 2008, [19] identified non-availability of electricity as one of the problem faced when delivering eLearning in Africa. However, he suggested that other factors might actually be more important in deterring people from developing eLearning activities. In [7] also claimed that electricity is one of the factors disrupting eLearning in Tanzania. In e-learning, the infrastructure, technology, content and human aspect all depend on the electrical supply, and lack of this electricity plays a major role in making e-learning closely impossible in the developing countries. In an empirical study conducted in India [20], a relationship was found between economic growth and electricity consumption. The findings of the study indicate that electricity causes higher economic growth.

Energy efficiency is an important aspect of the Information Technology (IT) infrastructure. According to [21] & [22], IT infrastructure account for 1-2 percent of society's energy use. In his study, [23] projected that by 2014, fixed internet will have a large number of users compare to mobile data users and voice users. Likewise the internet, e-learning does require data centres, core and access network and end-user communication and computing equipment. According to a report from a Swedish study, [23] highlighted that end-user communication and computing equipment such as desktops, local servers, laptops, tablets, phones, wireless routers, set-top boxes, switches, computer monitors and TVs (IP connections) account for a total of 55 percent of electricity usage. And data centres accounting for almost 30 percent of electricity usage. This indicates that the end-user communication and computing equipment use more than the half of the total electricity use by the IT infrastructure. In the developing countries, even if the data centres such as the google and others around the world, to which learning materials can be access, have little or no concern to the epileptic electricity, the end-users have no electricity to power their devices in order to gain access to these learning materials and for successful e-learning to

take place. This shows how important electricity is to the successful e-learning which the devices use by end-users account for the majority of electricity use.

D. Internet experience

Internet experience which can be measured based on the longevity of internet usage or its frequency is also considered as one of the dimension in this study that is lacking in the developing countries in respect to eLearning. Internet technical competency by learner can also be regarded as internet experience by learner. In the study [24] found internet experience to have influence on users approach and internet search pattern. As internet adopters gathered more experience on the internet, their search proficiency rise [25]. And [26] conducted a survey which found that internet users tend to focus on their jobs and work-related research online, and also increase their amount of time spend working at home while more years of experience was also found to significantly increase in e-mail usage among family members. This shows that the more exposed the users are to the internet the more they tend to appreciate its usage and spend more time in doing what they consider important to them. However, lack of internet experience had made many people in Nigeria unaware of the global trend, possibility of learning out of the classroom and the ability to relate with people outside their vicinity.

IV. CONCLUSION

Upon the need to creating a knowledge community by bridging the gap between the know and the know-not, e-learning had shown to the world that an era of technology and the introduction of social media are not only for leisure, but, for educationists, students and the masses to take advantage and utilize it for their knowledge acquisition and educational purposes. However, the developing countries are faced with a number of challenges, which might cripple these important aspects of knowledge acquisition, such as lack of computer ownership, epileptic electricity supply, lack of access to internet and lack of internet experience. With these issues at hand, what could possibly continue to happen to the masses in a country with more than 160 million people and less number of literacy? E-learning is the answer, due to its less cost, elimination of distance, time saving and the interrelationship between different groups and people around the world, while the need to own a computer by individual, the supply of electricity by government, the zeal to learning how to surf and have access to the internet.

REFERENCES

- [1] J. Cross, "The future of eLearning," *On the Horizon*, vol. 12, no. 4, pp. 151 – 157, 2004.
- [2] C. Haythornthwaite, and R. Andrews, *E-learning theory and practice*. Sage publications Inc: London, 2011.
- [3] C. Huandong, W. Shulei, S. Chunhui and C. Mingrui, "Research on the learning theory of elearning," Fifth International Joint Conference on INC, IMS and IDC. Seoul, Korea August 25-August 27 1185-1187, 2009. <http://www.computer.org/csdl/proceedings/nem/2009/3769/00/3769b185-abs.html>
- [4] C. Beard, J. P. Wilson and R. McCarter, "Towards a theory of e-learning: experiential e-learning," *Journal of Hospitality, Leisure, Sport and Tourism Education*, vol. 6, no. 2, pp. 3 – 15, 2007.
- [5] Sunan Ibn Majah, vol. 1, no. 1, Hadith 224

- [6] Sahih Muslim, Hadith 2699
- [7] V. Ndume, F. N. Tilya, and H. Twaakyondo, "Challenges of Adaptive eLearning at Higher Learning Institutions: A Case Study in Tanzania," *International Journal of Computing and ICT Research*, vol. 2, no. 1, pp. 47 – 59, 2008.
- [8] S. M. Samarasinghe and A. Tretiakov, "A multi-dimensional measure of elearning systems success," proceedings ascilite Auckland 2009. Retrieved on 3rd January, 2013 at http://www.ascilite.org.au/conferences/auckland09/procs/samarasin_ghe-poster.pdf
- [9] R. Hussein, N. Mohamed, A. Ahlan, M. Mahmud and U. Aditiawarman, "An integrated model on online tax adoption in Malaysia," *European Mediterranean & middle eastern conference on information systems 2010*, April 12-13, 2010, Abu Dhabi, UAE.
- [10] H. Wang and H. Yang, "The role of personality traits in utaut model under online stocking," *Contemporary management research*, vol. 1, no. 1, pp. 69-82, 2005.
- [11] J. Burns, (2014). A third of poorest pupils 'without internet at home' BBC news education and family [Online]. Available: <http://www.bbc.co.uk/news/education-20899109>
- [12] J. A. Van DIJK, "The evolution of the digital divide-the digital divide turns to inequality of skills and usage," *Digital enlightenment yearbook 2012*, pp. 57-75, 2012.
- [13] M. Tagoe, "Students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana," *International Journal of Education and Development using Information and Communication Technology*, vol. 8, no. 1, pp. 91-103, 2012.
- [14] J. Schmitt, and J. Wadsworth, "Is there an impact of household computer ownership on children's educational attainment in Britain?," *Centre for economic performance, Discussion paper no 625*, (2004). Retrieved on 3rd January, 2013 at <http://cep.lse.ac.uk/pubs/download/dp0625.pdf>
- [15] Internet World Stats (2014, July 3). World Internet Users and Population Statistics as at June 30, 2012 [Online]. Available: www.internetworldstats.com/stats.htm
- [16] B. Oyelaran-Oyeyinka, and C. N. Adeya, "Internet access in Africa: An empirical exploration," *UNU/INTECH Discussion papers*, 2002. Retrieved on 9th July, 2014 at <http://www.intech.unu.edu/publications/discussion-papers/2002-5.pdf>
- [17] S. Wallsten,(2002). Regulation and Internet Use in Developing Countries, World Bank Policy Research Working Paper No. 2979 [Online]. Available <http://dx.doi.org/10.2139/ssrn.366100>
- [18] Y. K. Cheah, and C., M. Ning, "Socio-demographic determinants of computer ownership: An empirical view in the city of Gui Lin," *Institutions and Economies*, vol. 5, no. 1, pp. 57-70, 2013.
- [19] T. Unwin, "Survey of e-Learning in Africa: based on a questionnaire survey of people on the e-Learning Africa database in 2007," *Royal Holloway, University of London*, 2008. Available http://www.elearning-africa.com/pdf/survey/elareport_timunwin.pdf
- [20] G. Gupta, and N. C. Sahu, "Causality between Electricity Consumption and Economic Growth: Empirical Evidence from India," 2014. Retrieved on 9th July, 2014 at http://www.researchgate.net/publication/44105322_Causality_between_Electricity_Consumption__Economic_growth__Empirical_Evidence_from_India
- [21] S. Barker, S. Kalra, D. Irwin, and P. Shenoy, "Empirical Characterization and Modeling of Electrical Loads in Smart Homes," 2013. Retrieved on 9th July, 2014 at <http://www.ecs.umass.edu/~irwin/models.pdf>
- [22] J. Koomey, "Data Center Electricity Use 2005 to 2010," 2011. Retrieved on 9th July, 2014 at http://www.missioncriticalmagazine.com/ext/resources/MC/Home/Files/PDFs/Koomey_Data_Center.pdf
- [23] J. Koomey, "Energy use and the information economy," 2014. Retrieved on 9th July, 2014 at <http://rael.berkeley.edu/sites/default/files/Koomey-PSE3-Euseandtheinfoeconomy.pdf>
- [24] D.J. Slone, "Internet search approaches: the influence of age, search goals, and experience," *Library & Information Science Research*, vol. 25, no. 4, pp. 403-418, 2003.
- [25] M. R. Ward and M. J. Lee, "Internet shopping, consumer search and product branding," *Journal of Product and Brand Management*, vol. 9, no. 1, pp. 6 – 20, 2000.
- [26] B. H. John and R. Lee (2002, March, 3). Getting Serious Online [Online]. Available: <http://eric.ed.gov/?id=ED462978>.