Levels of Preparedness to Support Open and Distance Education: A Review of Universities across the Globe

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Abstract

The paper focuses on the levels of preparedness by universities to support open and distance learning education in the western world, Africa and Kenya. It also assesses the factors and resources that determine the levels of preparedness across universities in the globe in terms of infrastructure. Additionally, the paper addresses the role of Information Technology in facilitating the levels of preparedness in open and distance learning. The paper provides a conclusion and recommendations. Compared to the western world, the review brings to light that universities in Africa and specifically Kenya are inadequately prepared to support open and distance learning education especially on the component of support structures. This observation is a wake-up call for universities in Africa and Kenya to redirect their energies on ways to provide support systems for open and distance learning calls. The review also highlights the need for developing countries to invest heavily on hardware, software and improve on internet connectivity in order to boost open and distance learning education.

Keywords: *Distance learning, distance learning infrastructure, information technology, open learning, distance learning education, open education, distance learning resources, open learning resources*

Introduction

Millions of people in the world desire to access education so that they may further their studies or at least get high quality education from a reputable university in the world. Several people work and may not get time to attend physical class to further their studies and enhance their professional ambitions. That means that they may either be forced to stop working first to study or pursue evening classes which are not convenient for all people since some work at night, others change shifts often, while others leave work late to take any class (Evans, 2013). However, technology has made it possible to kill two birds with one stone (work and earn money and study at the same time). Information communication technology in education has played a significant role in making the learning process effective.

Distance learning refers to the learning process where the tutor or instructor and the student are separate, in space and frequently in time as well (Haythornthwaite, Andrews, Fransman,

& Meyers, 2016). To achieve this objective, the content of the courses have to be packaged in a certain form. The implementation process depends majorly on various factors. Essentially, the package is text-based, but it can include audiotapes, video, and computer-assisted learning (CAL) (Evans, 2013). In the case of no time difference, where the only difference is a physical distance, then information technology systems are the most suitable. On the other hand, open learning is a much more general term which is similar to flexible learning and can apply to a whole range of systems that allow the student to make a choice as to the pace, place and time of learning (Pislaru & Restoum, 2015). It can encompass anything from drop-in centers to stand alone multimedia systems to independent study. Nevertheless, most of them require a package to provide flexibility. Whatever the system, though, it normally offers some support for the student which is extra to the package.

Through technology, people can now undertake open and distance education where they use their PCs or laptops, connect the Internet, and access education through the e-learning system. E-Learning can be justified by several benefits associated with it that include cost reduction, increased efficiency, scalability, transparency, accessibility, consistency, flexibility, and improved student performance (Harry, 2012). However, for one to achieve these benefits, there must be high level of preparedness by the university. In other words, the level of preparedness of universities to support open and distance education determines the quality of education offered and the level of success of the program. Unfortunately, different universities across the globe demonstrate different levels of preparedness to support and offer open and distance education. It is in the light of this argument that this paper provides an in-depth discussion on the levels of preparedness among universities in western world, Africa, and Kenya as far as open and distance learning resources are concerned.

The following objectives guided the review: to examine factors that determine universities' levels of preparedness to open and distance learning, levels of preparedness of universities across the globe and role of Information Technology in facilitating levels of preparedness.

Factors and Resources that Determine Levels of Preparedness

Every university that has or intends to set up an open and distance education must have e-Learning Management System (eLMS) also called Course Management System (CMS) (Paulsen, 2011; Sife, Lwoga, & Sanga, 2008). There are 100s of eLMS present in the market today, some being commercial while others are open-source applications. The type of eLMS application used by a university largely depends on its compatibility to the server and its suitability to meet the needs of the university (In Haythornthwaite, In Andrews, In Fransman, & In Meyers, 2016). Different universities in the world use different LMS applications which vary in terms of their features. The variance is mostly associated with training needs and the budget of the university (Pislaru & Restoum, 2015).

With regard to hardware, a learning institution needs specific components to successfully set up open and distance learning. These components are basically infrastructural that determine whether the institution will be ready or not to support open and distance learning. Still on the

same, different institutions demonstrate varying levels of preparedness depending on the quality, excellence, and superiority of the systems set (Malloch, 2014). Servers that are most effective ensure smooth connectivity between the instructor and the learner in whatever area students are located. Cloud servers are superior in performance hence high levels of preparedness for universities that have invested on them. As Kasemsap (2018) states most universities spend a lot of time, money, and other resources to set up high-quality systems that guarantee excellent performance to promote efficient e-Learning process.

Levels of Preparedness

In the developed countries, the main hardware components are the server, user database, and concurrent users, bandwidth, and other server configurations. The findings indicate that different campuses use different types of servers. The majority of the universities in the US, which is the leading country in terms of e-Learning, use cloud servers which provide superior performance and features. Moon and Rho (2013) explain that two-thirds of the universities and other higher education institutions offering online courses use cloud servers that are highly sophisticated, difficult to hack, extremely effective, and very costly. Examples of universities in the US using cloud servers include: University of Colorado, Boston University, St. Bonaventure University Online, and Walden University among others (Burger, 2014). Examples of universities in the UK that use cloud servers to offer e-Learning include the University of Portsmouth, the University of Manchester, Imperial College London, and the Open University UK among others (Paulsen, 2011).

The major difference in the servers used by the universities globally is determined by user database and concurrent users, which is the second component under hardware for setting up open and distance learning (Sife, Lwoga, & Sanga, 2008). Before a university sets up its system, it has to estimate the number of users that will access the server at a time. If a given server can sustain 200 users only at a given time, it would crash immediately a 201 person accesses the system. Cloud servers are very effective because they can support more than 200 users at any given time and that is the reason they are preferred by the universities in the western world (Minović, Štavljanin, Milovanović, & Starčević, 2008). Shared servers and dedicated servers are not too powerful and cannot support more than 200 users at a given time.

The same applies to bandwidth whereby more powerful servers support lengthier bandwidth compared to less-powerful ones. It means that universities in the US and the UK offering open and distance learning can accommodate more users compared to the universities in developing countries that use less-powerful servers (Moon & Rho, 2013). Generally, based on hardware consideration, universities in the western world have higher levels of preparedness to support and sustain open and distance learning compared to universities in Africa and Kenya.

It is a different ball game for universities in Africa where universities have to share servers. In addition, due to cost implications, it is almost difficult for these universities to provide and sustain such superior support as experienced in developed countries. These universities in Africa include: universities in Malawi, Uganda, and Kenya among many others (Moon & Rho,

2013). Universities such as Makerere in Uganda, the University of Nairobi in Kenya and the University of Cape Town use shared servers, which are efficient and cheap to both setups and maintenance (Paulsen, 2011). The findings also indicated that other universities that intend to set up open and distance learning education are likely to adopt servers that are used by their neighboring universities because they have proven to work in the region as opposed to other servers that are not proven and may not be effective (Chih-Cheng, Zheng, & Robin Chiu-Pin, 2011).

The findings indicate that at Makerere University, there have been three different LMS-supported e-learning initiatives in the last decade, all yielding minimal success. The first one, with Blackboard, did not meet much success beyond having some staff trained to create and upload e-learning content on to the LMS (Pislaru & Restoum, 2015). Later, the university moved from Blackboard to the Kewl LMS because the high license fees for Blackboard were unsustainable beyond the donor funding. Kewl, being open source, provided hope for sustainability. However, less than two years later, with very little success with Kewl, the university decided to move on to Moodle (Warf, 2013). Moodle has now been customized and branded Makerere University E-Learning Environment (MUELE). However, the LMS is yet to be utilized to its potential. As Makerere is the leading university in Uganda, it is likely that similar trends in e-Learning or even worse are experienced in the other universities in the country, and most probably across the region.

Other findings indicate that the University of Cape Town uses Sakai11 as the major LMS that has been custom-built and branded Vula. Initially, the university used Moodle and WebCT before it switched to Sakai 11. According to Ssekakubo, Hussein, and Marsden (2013), the turnover of LMSs at the university has been as a result of usability issues which made it shift to the current LMS application. Although the turnover had data migration difficulties and led to frustrations among the user communities, it was essential to have it as the university continued to seek for an LMS that would satisfy most of its requirements (Ssekakubo, Hussein, & Marsden, 2013). As per now, Sakai 11 meets the university's requirements, and thus, it is the most suitable.

The University of Nairobi has implemented three different learning management systems in the last five years namely; Wedusoft, Chisimba, and Claroline. Wedusoft was specifically developed by a member of staff for the university while Chisimba was adopted and implemented through collaboration with development partners (Ssekakubo, Hussein, & Marsden, 2013). Currently, the university is using Claroline LMS. However, none of the LMSs have been utilized to their potential, and the success of LMS supported e-learning at the university is described as minimal because there are about ten lecturers only who use the platform in the university.

Universities in Kenya have been facing a lot of challenges as far as open and distance learning is concerned. In a study to examine the existing standards and mechanisms put in place to ensure quality in ODL in public universities in Kenya, Mayeku and Odera (2011) noted that there were no clear written policies or guidelines on ODL programmes at the national level.

Distance learning at the university level continued to face the challenges of inadequate resources, poor infrastructure and support for distance learning, poor teaching/learning practices, and scarcity of computing resources for technology enhanced distance education. The level of access to literature by ODL students poses another challenge that affect the quality of learning and research outputs of learners. Ngumi (2012) found out that only 17.6% of students had an experience in using E-learning, 20.9% had used open electronic resources in their studies and 38.5% of the open and distance learning students had accessed the journals. The statistics given by Ngumi indicates that less than 50% of open and distance learning students used online resources. It has been argued that 97.5% of trained professionals lack training and experience on how to implement distance learning through computer technology (Nyerere, Gravenir, & Mse, 2012). Though rural internet connectivity has expanded in Kenya, the costs and support systems prohibit open and distance learning students accessiblity (Wakahiu & Kang'ethe, 2014). In terms of broadband penetration Kenya has 30% coverage in the whole country (Aukue-kpakpo, 2013). From these findings it is clear that the levels of preparedness to support open and distance learning in universities in Kenya is inadequate.

Role of Information Technology in Facilitating Levels of Preparedness

Internet supply and connectivity are very important in facilitating open and distance education. Without the Internet, one cannot access online content irrespective of whether he has the best gadget in the world or not (Brown & Licker, 2011). The instructor cannot communicate with or pass the learning materials to students undertaking online courses without the Internet. The findings indicate that Internet coverage and speed varies from one country to another. According to Akamia Data (2018), European countries are the highest ranked in terms of average mobile Internet speed. Japan is the only non-European country in the top ten countries with the highest and most reliable Internet speed in the world. Unfortunately, Kenya is the only African nation to feature on Akamia Data's top countries which means that the majority of African countries are still struggling to offer reliable and speedy Internet to its citizens (Akamai Data, 2018). Surprisingly, the US is not among the top 20 countries with the fastest Internet speed because its average megabits per second is 10.7 and ranked 28th in the world (Pislaru & Restoum, 2015). However, in terms of broadband penetration and coverage, the findings indicated that the US ranks among the top three countries in the world with coverage of more than 90 percent of the country. According to Akue-kpakpo (2013), the US ranks the second best in the world after Finland in terms of broadband penetration and reliability compared to Kenya that has 30 percent coverage in the whole country.

From these findings, it is clear that Europe shows the highest levels of preparedness in terms of Internet speed, connectivity, and broadband connection (Burger, 2014). It means that their levels of preparedness to offer open and distance education are boosted by the reliable and speedy Internet present in most of the European countries. The same applies to energy supply and stability whereby the US and European countries hardly experience blackouts, and thus, the universities in these countries can offer open and distance education without worrying about blackout or power backup means (Brown & Licker, 2011). The same cannot be said

about Africa, and even Kenya where frequent blackouts are still experienced and universities offering open and distance education must have backup plans.

Conclusion

From the observation, it is clear that the levels of preparedness by universities to support open and distance learning, differs in terms of infrastructure, Internet connectivity, electricity, and support team. The findings have proven that universities in the western world are more prepared to support open and distance education than universities in Africa, Kenya and other parts of the world due to their powerful hardware and software that make them highly efficient and effective in offering open and distance education. Therefore, universities in Kenya and Africa need to enhance their competitiveness in e-Learning by establishing support structures to universities offering open and distance learning. Universities in Africa should invest in more superior servers and applications. Further, they should enhance support systems for instructors to equip them with knowledge and skills to carry out open and distance learning with high levels of professionalism. Lastly, they should work towards enhancing international collaboration for e-Learning through which they will learn new strategies, approaches, and techniques to make them competitive.

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