Globalization and New Education Frontiers: A Look at the Factors Affecting Virtual Learning in Kenya

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ABSTRACT

The advent of globalization has brought with it a drastic change in the education sector in Kenya. The flexibility of new learning environments is an interesting aspect that is now commonplace in learning institutions. The interaction of people across the globe brings about a merging of cultures, experiences, skills, and expertise. In addition, the global market presents learning institutions with a wide student base that are willing to enroll in their educational programs. Education has now evolved from the traditional classroom blackboard approach into a more technological advanced platform. This platform is commonly referred to as Virtual learning and is widely used by many universities across the world. The article indicates that there are difficulties that face this form of education in developing countries, specifically Kenya, making it a farfetched development goal in the Kenyan educational institution. The study collected primary data and used regression analysis to analyze data. The findings presented in the article cite technology, internet connectivity, low investment, and teaching practices as critical factors affecting Virtual learning in Kenya.

Keywords: Digital Learning, Education, Globalization, Teaching Practices, Virtual Learning.

I. INTRODUCTION

Mitchell and Nielsen (2012) define globalization as the process by which businesses or organizations develop international influence. The authors describe the process as method institutions choose to operate on an international scale to intentionally remove artificial boundaries across nations in order to allow the accessibility of goods, technology, services, people, knowledge and cultures across the globe without any impediments. The development of globalization has brought together new educational terminology of Virtual learning or online education, which is promising to be more available, flexible, and appropriate in its approach towards higher education (Altbach, 2001). Technological innovation marshaled by globalization has introduced new educational frontiers of virtual learning that has provided greater access, flexibility, and opportunity for education seekers (Sethy, 2008).

According to Hennessy et al. (2010) virtual learning has become one of the key drivers of academic revolution in Kenya and it has not only changed the conventional way of learning, but it has also influenced what, how, when and where learning takes. This has further allowed educational institutions to launch their presence in distant geographical areas within the country (Kamau, 2013). Kenyan Universities through technology and globalization have created a virtual learning environment where participants can engage, communicate, interact, and view learning resources in an online setting through a mediated learning system, commonly known as a learning management system (LMS).

Chakraborty and Nafukho (2015) state that in the 21st century, from a transformative perspective, globalization has had a big impact on the core functional areas of higher learning institutions.

Nyerere (2016) posits that in Kenya, virtual learning has created vast openings in higher education. Kenya has a well-established higher education system compared to other countries in Africa and it is considered a good investment ground by the many foreign educational institutions seeking to establish a footprint in the country. Kamau (2013) argues that economic globalization is slowly turning education into a hot commodity whose value is entirely dependent on accessibility, ease, availability, and security with which it is formulated. As knowledge acquisition is now highly commodified, there is high demand for higher education degree programs. As a result, Kenya’s higher learning institutions has experienced an increase in program admission as education seekers are enrolling to study virtually due to time and logistic challenges that hinders them from pursuing education the conventional way. Ferrell (2007) adds that due to Kenya’s fast-growing internet connectivity, Kenyan learning institutions have taken an advantage of this wave of technology by making virtual learning a popular mode of learning. Nyerere (2016) notes that higher learning institutions are introducing fully fledged online degree programs and hiring experienced and qualified virtual learning instructors to facilitate the programs.

Kipkirui (2014) states that the introduction of online learning has created a surge of academic enthusiasts seeking higher education. The learners are signing up for online degree programs offered by the local educational institutions,
or by foreign educational institutions, either singly or in partnership with the local institutions. With this kind of trend, the possible implication is that virtual learning in Kenya is growing at a steady rate, as a result making it a popular mode of higher education acquisition. Hence, with the quality of technological advancement introduced in the local institutions through global interactions of foreign institutions, quality of degree programs offered is therefore not in question (Gakuu et al., 2009). Kenyan institutions are constantly building and improving frameworks that guide and regulate virtual learning purposely to boost the public’s confidence.

Jung (2005) states that higher education has always been international in the sense that ideas exchange virtually, scholars from different geographical locations write and publish articles virtually, students from different institutions communicate with each other using modern technological gadgets, and extremely intellectual scientists use the internet as well as other forms of communication technologies to conduct research and development activities which now makes globalization more prominent today than it was before. In virtual learning, learning materials, student services, and other functionalities are simulated through the internet thus no need for physical interaction to complete a study program (Barjis, 2003).

According to Kauffman (2015) access to education is not confined in a particular locus as it was earlier. Virtual learning has collapsed all geographical boundaries to easy knowledge acquisition thereby making geography a thing of the past (Jain, 2006). In Kenya, virtual learning is a favorable strategy to address the challenges of access to higher education. It is progressively seen as an educational distribution prototype of high quality and cost-effective education (Farrell, 2007). Nyerere (2016) notes that virtual learning has not achieved its expected potential and suffers from a myriad of challenges that affect its full implementation. The blended approach is still practiced across universities where distance learning is combined with physical contact. This means that it is not fully online and there are factors that affect its implementation.

II. PROBLEM STATEMENT

Omidinia et al. (2011) state that the virtual learning system, the technological progression and operations and any sort of technical fault are likely to create chaos in the education system. Kamau (2013) adds that while corporate trainers have been able to save on cost by moving to ICT-based training, most universities in Kenya find that ICT adds to their operational costs. The more emphasis they place on maintaining and improving system quality, the more ICT related costs are incurred, and, in the end, Kenyan higher education institutions find it costly to offer virtual learning. Nyerere (2016) posits that infrastructure, equipment and maintenance costs are only the beginning: training and greater workload add up substantially. Gakuu et al. (2009) admits that virtual learning holds immeasurable promises but highlights that a number of tough challenges have to be addressed before it can be fully actualized in Kenya. Infrastructure, a key challenge outside the capital city Nairobi, remains inadequate. Connectivity beyond the city and lack of qualified and trained academic online lecturers poses a potential problem in creating a national virtual learning education system. Kipkirui (2014) agrees with Nduati and Bowman (2005) in those Kenyan institutions, are not doing enough to train their instructors on how to deliver virtual learning programs.

Virtual learning technologies require tutors or facilitators to be qualified and properly trained to use software such as the lms or canvas that are required to deliver online degree programs. Kipkirui (2014) further states that in the present day, only a handful of African scholars have the experience in facilitating academic modules in an online environment; a situation that poses key challenges in successfully providing virtual learning education in Kenya in the near future. Kamau (2013) points out another key challenge affecting online education in Kenya as lack of electronic equipment such as laptops and computer desktops. This challenge has seen many learners opt out of this mode of learning for fear of lagging behind and taking too long to complete a university degree. This challenge creates lack of confidence in online degree programs as 100% of the time, students miss lectures, are time barred on assignments and continuous assessment tests.

Studies done on virtual learning have revealed that globalization has had an impact on its present-day progression and improved online education policies in higher learning institutions in context and theory (Kamau, 2013; Kipkirui 2014; Ferrell, 2007; Nyerere, 2016). The authors studied online learning in higher education institutions where in every university, a designated education block was dedicated to distance learning. In this case, students were learning virtually within the physical presence of a “virtual campus,” the complete opposite of online learning. From the studies sampled, none of them focused on the factors that could affect virtual learning in the context of globalization, while considering implementation challenges facing full virtual learning environments in Kenya. Therefore, this research paper sought to find out these factors affecting virtual learning in Kenya and close the gap.

III. OBJECTIVES

1) To highlight teaching practices and their effects on virtual learning environments
2) To find out how internet connectivity affects virtual learning
3) To establish the effect of low investment by universities on virtual learning in Kenya.
4) To find out how access to technology affects virtual learning in Kenya.

IV. LITERATURE REVIEW

A. Teaching Practices

Sun and Chen (2016) reviewed some published studies on online instruction and virtual learning and provided a practical recommendation for the development of online courses. The authors note that effective online instruction is a function of the proper design of course content, motivated instructor-learner interaction, well-prepared and fully supported instructors. Secondly, they point out the need to create a sense of community for online learners. Students...
should feel a sense of belonging, trust each other, construct knowledge, share useful information, establish connections, and set common learning objectives. Jung (2005) emphasized that the instructor should assign tasks that demand collaboration, encourage social interactions, and create critical thinking. Thirdly, the researchers cite the alignment of online instruction with the rapid advancement of technology. The instructor should use synchronous and asynchronous technologies to create a shared space for student-student and teacher-student interaction.

Chakraborty and Nafukho (2015) discussed strategies for creating effective virtual learning environments. They focused on the instructor’s presence and teaching immediacy. The authors emphasized managing online environment differently than a face-to-face classroom. Specifically, they noted that teaching presence could be enhanced by creating or repurposing instructional content like lecture notes, providing teacher’s comments, and posting video lectures with personalized inputs. The authors add that constructive and timely feedback should be provided throughout the semester/course in addition to directing and facilitating online discussions. Consequently, the researchers outline a number of roles of instructors in online learning environments and these functions are related to teaching presence and immediacy. The authors describe the online instructor as a mentor, facilitator, designer and developer, manager or supervisor, technical assistant, role model, counselor, explorer, moderator, researcher, administrator, and repository.

According to Kauffman (2015) to promote learner satisfaction with virtual learning, online courses should be structured and interactive (constructivist instructional design), relevant (application-based or with practical significance) and instructor-facilitated in terms of feedback and interaction. Objectives should be aligned with instructional methods, learning activities, and assessment techniques. Instructors must provide timely feedback and facilitate discussions. Courses should also offer opportunities for information sharing and peer collaboration to develop an online learner community and alleviate feelings of isolation.

B. Internet Connectivity and Virtual Learning

Altbach (2015) established that globalization has enabled technology to grow and expand internationally thus enabling universities and colleges to internationalize their education programs for the purpose of attracting international students. This has further entrenched the progress of many African countries towards offering quality education. The growth of Virtual learning products and the provision of virtual learning opportunities is one of the most rapidly expanding areas of education and training in the African continent (Attwell, 2006). Whether via the intranet, multimedia, interactive TV, the internet or computer-based training; the development of virtual learning is accelerating.

Jain (2006) explained that one of the most lingering challenges faced by institutions in facilitating and delivering online programs in Africa is lack of access to high-speed internet. A countless number of factors causing this challenge includes irregular electricity, expensive data bundles, use of expensive low bandwidth satellite technology and inadequately trained IT personnel (Omidinia et al., 2011).

Still, the most visible challenge in offering virtual learning programs destined for countries in Sub-Sahara Africa, particularly Kenya, is the fact that the issues surrounding poor internet connectivity within households, the “anytime, anywhere” slogan does not apply (Muirwa, 2009).

According to the Kipkirui (2014) Kenya is listed as having the fastest internet connection in Africa and the Middle East, an inclusion it did not qualify for in the last couple of years. As a result, it has seen remarkable growth in high-speed internet connectivity. Nyerere (2016) noted that though the successful implementation of national broadband strategy has immensely contributed to the availability of high-speed internet connection, this is only limited to the urban sectors. The author highlights that students confined in rural Kenya and are interested in pursuing online degree programmes are likely to face the numerous consequences of internet disconnection or inaccessibility. Wells and Wells (2007) posited that internet shortages and connectivity disruptions during online lessons results in interaction problems such as poor sound quality, long question-response lag time, question-answer overlap, poor signals hindering clear communications between instructor and learners, etc. As a result, time is wasted, lessons are postponed, and observable signs of frustration from both learners and instructors are vivid. Hennessy et al. (2010) stressed that online learning disruptions caused by internet-related challenges could be a nuisance to smooth learning and eventually weaken instructor-to-learner relationships.

A study done by Kamau (2013) on the factors that affect effective adoption of E-Learning in Kenyan higher education learning found that lack of investment in ICT infrastructure such as reliable and high-speed internet connections were the contributing factors that posed a challenge in adopting an online degree program at Jomo Kenyatta University of Agriculture and Technology. The author noted that the institution did not support the instructors in all aspects surrounding the online system precisely where instructors were forced to use their own resources on instructional work without necessarily receiving any compensation. According to Nduati and Bowman (2005) university instructors in the interior rural areas such as Eldoret, Kitale, Meru and Machakos faced a major setback due to lack of computers and good internet connection. The University of Nairobi is considered one of the best education institutions that has fully-fledged high-speed internet connectivity across its campuses and through its well embraced ICT functions; it has over the years delivered distance learning programs. Very little is known about the successes of the online degree programs going by the issues highlighted in the problem statement. Nevertheless, poor internet signals caused by heavy rains or inconsistent power supply over a long period of time make it extremely difficult to smoothly deliver an online degree program. This kind of technological landscape makes the evolution of international online education handicapped to the students scattered around Kenyan region.

C. Access to Technology

According to Hennessy et al. (2010) many students in Africa are looking for opportunities to attend university and acquire degrees to advance in their career aspirations but they continue to face financial obstacles coupled with limited
access to modern technology. Rebecca Stromeyer the founder of eLearning Africa stated that “now is the time when access to technology can really help entrenched the progress many African countries have made in education. If the right decisions are taken now, they will help to sustain long-term economic growth.” Mitchell and Nielsen (2012) agree that when virtual learning tools are made available, virtual learning course materials can be easily provided from some of the top virtual learning institutions such as Saylor and Openstax. Thus, virtual learning is a perfect portal into higher educational opportunities and if one has limited access to broadband connections, good computers, and other resources, it remains a huddle that is to be explored in its full potential.

Kamau (2013) observed that self-motivated learners who have full access to online learning resources can take advantage of the various remarkable ways of learning. Zhao and Frank (2003) acknowledge that for virtual learning to take place, the available technology that’s used to drive the learning environment needs to be effective and reliable. In addition, instructors keep up with the constant changing nature of technology by either taking refresher courses or doing individual research. Surprisingly, Wells and Wells (2007) cautioned against adopting technology in Kenyan institutions for which local expertise is not readily available, putting a strain on its access as it is most likely to result in high maintenance costs for both the institution and the leaner. Technology has proven fundamental in the modern learning process and if it is to be used as a knowledge impacting tool, it should be affordable by education institutions and readily available to the existing and potential learners, particularly in virtual learning environments.

Ostensibly, Kenya as a nation is yet to measure up to the developed countries in terms of putting technological infrastructure in place, addressing abject poverty issues which are seen as major hindrances in virtual learning.

At the individual or organizational level, expensive hardware, and software as well as high costs of communication and services restrict access to ICT and overall make technology inaccessible, extensively affecting the successful delivery of online degree programs. Even though organizations are hell bent on driving the cost of learning down and making it rather more affordable, the high dropout rate still plagues higher learning institutions (Kipkiri, 2014). Learners who join the institutions with a strong desire to land jobs in blue chip companies are appealed to learn virtually citing accessibility to modern technology and a flexible schedule which enables them to do something else as they learn and ultimately. Unpredictably, with all the resources provided for, a lot of the learners start their degrees but never get to finish. They do not get to finish their individual courses and academic obligations leave alone completing their entire areas of study (Hennessy et al., 2010).

**D. Low Investment on Virtual Learning in Kenyan Universities**

Authentically speaking, for any university to successfully deliver an online degree program from enrolment to graduation, a lot of determination is needed. As far as financial preparedness is concerned, Kamau (2013) argues that majority of Kenyan education institutions embracing online learning have taken a back seat on investing in experienced personnel and proper facilities. These crucial indicators are relevant in readiness for any learning institution looking to adopt online learning. Unquestionably, the machinery, equipment and software needed to run the programs proves to be costly and as a result, these learning institutions are not too enthusiastic about implementing and actualizing this type of learning as a mode of study.

Nyerere (2016) emphasized that Kenyan universities should invest in well trained instructors who can tenaciously see through the delivery of online learning to its success and ensure that the existing instructors are well trained to teach learners in an online environment since they (instructors) are the key inputs, and the quality of the programs profoundly depends on them.

Instructors are expected to have the ability to; maintain an active line of communication, have a deep understanding of the courses being facilitated, humanize courses, have a hands-on practice with delivery equipment, encourage student participation, and have the ability to identify social loafers. Although Kenya still tops the list of high-speed internet connectivity ranking in Africa, this listing is far-fetched and totally implausible as the technological literacy is not widespread across the country especially where the target end users are dominant. Moreover, the cost of internet access is only affordable to the minority; making it difficult for education institutions to reach the wider majority of its target audience and in the unfortunate circumstances, they end-up counting losses on the unutilized software and hardware facilities purchased for this mode of learning (Jung, 2005).

Agreeably, over the past years, more attention has been given to face-to face mode of study which is preferred by many education seekers. In this regard, the authors feel like the same education institutions have not invested enough time, effort, focus, awareness in their online programs to potential students, consequently creating poor confidence in this mode of acquiring higher education. As a result, Kenyan universities are now faced with the daunting effect of students preferring face-to-face learning than online mode of study and do not view the latter as a viable alternative to attaining higher education degrees.

Nyerere (2016) agrees by stating that with high enrolments in the face-to-face programs and less demands on the online programs, Kenyan Universities do not feel compelled to invest and deliver these kinds of programs. The author concludes by positing that if online learning is to be considered as a long-term strategy of Kenya’s ability to deliver globally competitive quality education and achieve its 2030 SDG, Universities ought to invest sufficiently in their internet infrastructure, equipped instructors, online learning method systems and current technology that would make learning materials easily accessible. Further, the universities should have proper academic policies that embrace and encourage online learning as an alternative method of acquiring a university degree (Kipkiri, 2014).

**V. METHODOLOGY**

Before processing the responses, the completed questionnaires were to be edited for completeness and consistency. The study used a sample population of 40 respondents from the Kenya Methodist University. The study...
used regression analysis to analyze data. The regression model adopted and used for the study is as shown below:

\[ Y = A + B1X1 + B2X2 + B3X3 + B4X4 + \epsilon \]  

(1)

where

Y= Virtual learning.
A= A constant which is equal to Y when all other variables are at 0.
X1= Technology.
X2= Internet connectivity.
X3= Teaching practices.
X4= Low investment.
\(\epsilon\) is the error of prediction.

VI. FINDINGS AND CONCLUSIONS

A. Rate of Growth of Virtual Learning in Kenya

Rate of growth of virtual learning in international transactions:

| TABLE I: GROWTH OF VIRTUAL LEARNING IN KENYA |
|---------------------------------------------|
| Response | Frequency | Percentage |
| High     | 6          | 10         |
| Moderate | 32         | 85         |
| Low      | 2          | 5          |

1) Interpretation

The findings presented in the table above are based on the question ‘rate the growth of virtual learning in Kenya over the past 3 years. 85% of the respondents answered moderate, 10% answered high while 5% answered that the growth was low.

B. Regression Analysis

The results of the multiple regression analysis between different variables related to study is as follows:

| TABLE II: TEACHING PRACTICES, INTERNET, TECHNOLOGY AND LOW INVESTMENT ON VIRTUAL LEARNING |
|-----------------------------------------------|
| Model          | B (Unstandardized Coefficients) | Std. Error | Beta |
| (Constant)     | 0.470                          | 0.224      |      |
| Does technology affect Virtual learning?     | 0.001                          | 0.062      | 0.003 |
| Does internet connectivity affect Virtual learning? | 0.251                          | 0.088      | 0.325 |
| Does low investment affect Virtual learning? | 0.187                          | 0.065      | 0.346 |
|                  | 0.303                          | 0.076      | 0.476 |

The coefficient of determination tells us the extent to which a change in the dependent variables can be explained by changes in the independent variables or the percentage of variation in the dependent variable that is explained by all the four independent variables. The four independent variables that were studied explain only 0.59% of the factors affecting virtual learning. This therefore means that there are other factors not studied in this research which contribute 41% to virtual learning or are absorbed by the error term. Therefore, further research should be conducted to find out these other factors not explained in the model.

C. ANOVA

1) Dependent Variable: Virtual learning in international transactions.
2) Predictors: (Constant), does technology affect virtual learning, does internet connectivity affect Virtual learning, do teaching practices affect virtual learning, and does low investment affect virtual learning.

3) The study used Anova to establish the significance of the regression model from which F- significance value of P=0.05 was established. This shows that the regression model has a less than 0.05 likelihood of giving a wrong prediction. This means that the regression model has a confidence level of above 95% hence the reliability of the model.

| TABLE III: ALPHA COEFFICIENTS |
|-------------------------------|
| Model | Sum of Squares | Df | Mean Square | F  | Sig. |
| Regression | 4.633 | 4 | 1.158 | 12.207 | 0* |
| 1 Residual | 3.226 | 34 | 0.095 | | |
| Total | 7.859 | 38 | | | |

D. Coefficients Results

| TABLE IV: TEACHING PRACTICES, INTERNET, TECHNOLOGY AND LOW INVESTMENT ON VIRTUAL LEARNING |
|-----------------------------------------------|
| Model | Unstandardized Coefficients | Standardized Coefficients | T  | Sig. |
| (Constant) | 0.470 | 0.224 | 2.100 | 0.043 |
| Does technology affect Virtual learning? | 0.001 | 0.062 | 0.003 | 0.022 | 0.982 |
| Does internet connectivity affect Virtual learning? | 0.251 | 0.088 | 0.325 | 2.855 | 0.007 |
| Does low investment affect Virtual learning? | 0.187 | 0.065 | 0.346 | 2.895 | 0.007 |
|                  | 0.303 | 0.076 | 0.476 | 3.986 | 0.001 |

1) Dependent variable: virtual learning

In order to determine the relationship between virtual learning and the four variables, the research conducted a multiple regression analysis. As per the findings generated in the table above:

\[ Y = 0.470 + 0.01X1 + 0.251X2 + 0.187X3 + 0.303X4 \]  

(2)

where

Y= Virtual learning.
X1= Technology.
X2= Internet connectivity.
X3= Teaching practices.
X4= Low investment.

VII. DISCUSSION

From the above regression model, if all the factors were to be held constant, virtual learning would stand at 0.470, a unit increase in technology will trigger a 0.01 unit change in virtual learning. Further a unit change in internet connectivity will lead to a 0.251 change in virtual learning. Whereas a unit change in teaching practices will trigger a change of 0.187 in...
virtual learning and a unit change in low investment will lead to a 0.303 change in virtual learning. From the above analyses of the betas, it can be inferred that internet connectivity and low investment contribute a lot to virtual learning at 0.251 and 0.303 respectively, followed by teaching practices and technology. The study also established that 5% level of significance technology had a 0.982 level of significance, internet connectivity had a 0.007 level of significance, teaching practices had 0.07, and low investment had a 0.01 as shown by the p-values.

VIII. CONCLUSION

A. Technology

The study concludes that Technology does not affect virtual learning with a p-value of 0.982. This means, according to the study technology is not a problem affecting the implementation of fully virtual learning environments. It shows that it is possible for learners to access computers and for the university to provide the necessary online environment to facilitate learning.

B. Internet Connectivity

The study concludes that poor connectivity affects virtual learning with a p-value of 0.007. Therefore, learning institutions should assess the internet access of their learners for virtual learning to succeed.

C. Teaching Practices

The study concludes that teaching practices influence the use of Virtual learning with a p-value of 0.007 in learning institutions that; lecturers need to employ a flipped classroom approach where learners get involved in the learning process and the lecturer becomes a facilitator. Additionally, many lecturers need to be trained in how to handle Virtual learning classes.

D. Low Investment

The study finally concludes that low investment affects Virtual learning in institutions of higher learning with a p-value of 0.001 and should be considered when trying to reach the global market. Low investment is seen in the lack of course material, few lecturers handling many learners and low payment rates for online teaching. Low investment also translates to inadequate infrastructure.

SUGGESTION FOR FURTHER STUDY

The study recommends other studies be conducted to find out any other factors that would affect the use of virtual learning in institutions of higher learning. Respondents suggested competition from other universities, and preference of traditional classroom mode of learning.

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