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The Digital Divide Hindering E-learning in Zambia

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Abstract:

This paper focuses mainly on the digital divide and how it is hindering eLearning in Zambia. The paper brings out several challenges that the Education sector is facing in implementing eLearning programs. The findings indicate that lack of adequate investment in ICT infrastructure has led to the high cost of internet services and this has impacted on the expansion of eLearning programs. The quality of internet in Zambia is also a huge challenge in delivering eLearning especially that attitudes and cultural issues are still barriers that need to be broken down in order for eLearning to completely succeed. The findings also revealed that Africa has received very little investment in ICT and that this impacts negatively on integration of eLearning in learning institutions. The literature review is drawn from different authors and draws a conclusion that there is need to improve investment in the ICT sector in Zambia in order to enhance the growth of eLearning.

Keywords **—eLearning, Technology, Government, Internet, Investment, Institutions**

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I. INTRODUCTION

The introduction of digital technologies has created numerous opportunities for the development of various business sectors including commercial trade, health and education. The education sector has enjoyed the benefits of e-learning as a result of digital technologies, Arkorful et al.in their research discovered that e-learning saves time, effort and increases revenue for the education provider (Arkorful & Abaidoo, The role of e-learning, the advantages and disadvantages of its adoption in, 2014). Research indicated that e-learning benefits educational services providers as it enables them to widen their market beyond geographic boundaries due to the lowering cost of the internet and web accessibility which creates a huge surge in the demand for online learning (Gilbert, 2015). For organizations such as the University of South Wales, they have been able to expand their prestigious degree offering to African markets and have increased accessibility to their services through the internet (Lewis, 2018). The BBC reports that enrolments in Universities have reduced but there is an increase of 28% of international students, of which the majority are online students (Lewis, 2018).

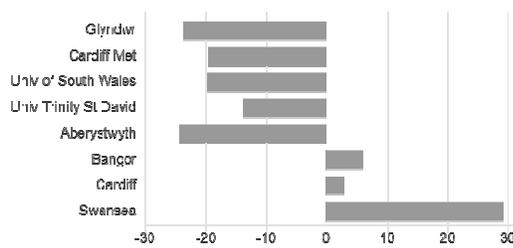Figure 1 below shows the statistics of student enrolments in Wales

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Figure1: University student enrolments in Wales

Source: (BBC 2019)

The report by the BBC strongly suggests that there is an increment in e-learning services while there is a reduction in enrolment for on- campus students. The conclusion is that e-learning is a growing educational platform. E-learning provides an opportunity for education providers to be able to link up with well- stocked electronic libraries such as the Emeralds Insight and Google Scholar among many others. At the University of Zambia for instance, medical students have access to the Royal College of Surgeons' library in Ireland (Schurgers, Stam, Banda, & Labib, 2009). The growth in e-learning is now a global trend as most people now have access to high-ranking universities which they actually could not have afforded to pay for as on-campus students. Theclaim, according to research, is that it is cost effective (Bartley & Golek, 2004). While globallythe prospects of e-learning education seems to indicate positive growth, what are the challenges for eLearning in African countries and specifically for countries such as Zambia?

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II. DEFINITION AND CONCEPT OF E-LEARNING

The internet and ICT have become powerful tools in the delivery of educational services (Richard & Haya, 2009). The concept of eLearning therefore is the use of technology and the internet to share information for both teachers and learners (Arkorful & Abaidoo, The role of e-learning, the advantages and disadvantages of its adoption in Higher Education, 2014). The concept of eLearning therefore entails that there cannot be attainment of online learning without the development of ICTs and digital media/platforms to enable the delivery of learning, using online resources. "E-learning is the use of Internet technologies to enhance knowledge and performance. E-learning technologies offer learners control over content, learning sequence, pace of learning, time, and often media, allowing them to tailor their experiences to meet their personal learning objectives." (Jethro, Grace, & Thomas, 2012). Jethro et al. based their definition of eLearning on that by Marcus (2008) who had defined it as a process of creating interaction with digitally-delivered content and network support without the need for face to face interaction.

III. WHAT IS THE DIGITAL DIVIDE?

The digital divide is a concept born in the 1990s and it refers to the gap separating those who have access to new information technology and those who do not have access (Chalita & Erik, 2011). In 2013 46.7% of households in Zambia had access to a computer and by 2015 only 12.7households had access to the internet (ZICTA, 2015). This statistics indicate that the digital divide in Zambia is a serious concern and a huge hindrance to the implementation of eLearning.

IV. METHODOLOGY

The work that was carried out in this paper involved analysing work that was done by other authors on similar subjects and building on the gaps that were identified. This is a desktop study that involved literature review of already published papers and reports in order to draw the conclusions in this research. The research is an online desk research involving the analysis of journal articles that are available online, and therefore the methods used were secondary onlineresearch since all the data that has been used is secondary data (Desk case study). Desk case study is defined as the process of accessing published secondary data (Zhou & Nunes, 2006).

The findings in this paper are therefore dependent on the literature review and the author's insight from personal experience and observation.

V. LITERATURE REVIEW

Zambia is among the pioneers of internet in Africa and has been recording a significant growth in the Internet subsector, the growth in this sector however has resulted in an increase in retail price of the internet and subsequently reducing internet penetration by 2.9% (Habeenzu, 2009/2010). The increase in retail price of the internet is largely attributed to lack of investment in ICT infrastructure which largely in Zambia is dependent on external providers. Additionally, Zambia is still among the highest in terms of internet costs in Zambia and theassumption is that this can impact on e-learning negatively.
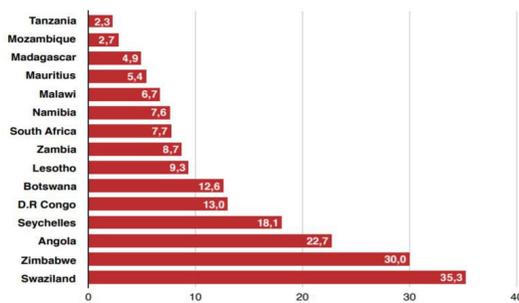
Figure 2: Internet costs in the SADCC region

Figure 2: Cheapest 1GB prepaid mobile data prices in SADC countries (USD)
Source: RAMP Index (2017)

Source: RAMP Index 2017

Figure 2 shows that Zambia is in the top eight of the countries with higher costs of technology and this could mean that delivering e-learning faces challenges in that the price of internet creates a digital divide and reduces expansion of online learning programs. A research carried out in Saudi Arabia indicates that eLearning is mainly affected by cultural issues rather than costs of internet access (Solangi, Shahrani, & Pandhiani, 2018) . Cultural issues have been raised consistently in a lot of research as one of the biggest barriers to implementing internet-based learning.

Scheneckenberg in his research mentioned culture as one of the biggest barriers to implementing successful eLearning platforms. According to the research, scepticism is a huge monster hindering the implementation of eLearning (Schneckenburg, 2009). While culture and cost of internet services are among the biggest barriers to implementing eLearning, findings also indicate that in Zambia the challenges are also bandwidth limitation and quality of internet services (Basak, Wotto, & Bélanger, 2017). While other factors may contribute in hindering eLearning, the high price and poor quality of internet services may be assumed to be the most predominant factors. The digital divide in Zambia is seen to be the hindrance in the successful implementation of eLearning platforms. Researchshows that education, infrastructure, and government policy are the three key elements that are necessary to bridge the digital divide (Trepels, 2012). The research by Trepels does not indicate the cost implications for bridging the digital divide and costs that are assumed in this research as the biggest factor that is hindering the implementation of eLearning environments. According to World Statistics, Africa still has the least of people with access to the internet. InZambia only 20.4% of the population has access to internet (Internet World Statistics, 2019). Examining the population in Zambia, it is evident that the country still has very low access to internet resources and this is a huge hindrance to implementing online learning. The research by Trepels provides useful information on how the digital divide is preventing access to global information and this can be useful in this research especially if the variable of internet cost and quality are used as strong arguments. Figure 3 shows comparisons of internet penetration. Fromthe graph, Africa is the least in terms of penetration rate.

Figure 3: A comparison of internet penetration in Africa
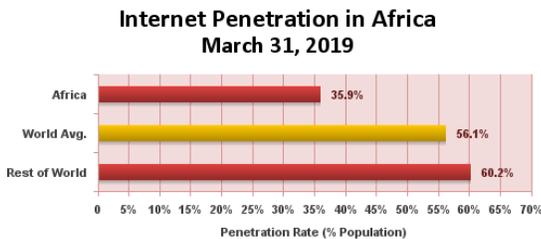
Source: Internet World Statistics 2019

A research carried out by Kaunda and others indicates that despite the public Universities such as the University of Zambia, Copperbelt University and Mulungushi University being offered free internet access, Lecturers did not utilize this opportunity (Kaunda, Chembe, & Mukupa, 2018). This finding shows empirical evidence that it is not the cost or lack of access to internet but rather an attitude or cultural problem. By the argument in the research by Kaunda and others, it can be seen that while access and cost are critical factors in bridging the digital divide,other factors are also prominent. The research however was not focused on the key aspects of the digital divide but rather on attitudes of Lecturers in integrating ICTs in their work.

Over 3.1 billion people globally use the internet for various purposes of which the largest number of users are the Chinese with 642 million people. However, the digital divide is real as it leaves 4.2 billion people outside the digital revolution (West, 2015). Educational Institutions are using the internet to deliver modern learning in Zambia and most Universities including ZCAS University have turned to delivering learning content using eLearning methods. However, the advantage of using the internet as a driver for delivering education still faces a huge threat with limited access to the internet for most of the potential markets for eLearning services.

The question of how the digital divide is affecting eLearning in Zambia remains not fully answered even though a number of research works has brought out the challenges of eLearning. Gabriel Konayumain his research cited inadequate digital devices and lack of skills as those factors hindering the implementation of eLearning in Zambia (Konayuma, 2015). The finding by Konayumba is similar to what Vivian Mwiinga discovered in her research as she looked at challenges facing nursing students at Ndola School of Nursing. In the research, she discovered that lack of devices was one of the serious challenges (Mwiinga, 2018). The findings from the two researchers are linked to cost of internet access in Zambia and it still remains as one of the major challenges in implementing eLearning in Zambia. The digital divide implies that not so many Zambians have access to devices with internet and the impact of this on eLearning needs to be measured.

**VI.** THE DIGITAL DIVIDE HINDERING ELEARNING IN ZAMBIA

The findings from the literature review indicate that the cost of internet, lack of devices for internet access and also the poor quality of internet services in Zambia are major challenges in implementing eLearning. Most of the research though has focused on higher learning or tertiary Institutions in Zambia and not really on elementary and secondary schools.

Wanga and Ngumbuke in their research indicate that the commonest challenge to enhancing eLearning is the huge gap between those who have access to new technologies and those who do not have access (Wanga & Ngumbuke, 2012). The findings in the research were for Uganda and they look similar to the situation in Zambia, particularly looking at the analysis from the literature review. According to ZICTA, only 6 million people have access to the internet and this only represents 39% of the population (ZICTA, 2013). This shows that the digital divide will impact negatively on the implementation of eLearning as the majority of the potential target market for eLearning

programs might not and do not have access to ICT devices and quality internet services.

The World Bank reported that by 2012 the tertiary education enrolment in Zambia stood at 3.9% of the potential tertiary education population (The World Bank, 2012). Figure 4 below shows an increment in the number of tertiary education enrolment in Zambia. This also indicated that the enrolment was still very low and this could be because of lack of opportunity and access to tertiary education facilities due to high costs and unaffordability. This presents a huge opportunity for eLearning but it cannot expand further due to low access to internet facilities by the majority of the population in Zambia.

Figure 4: Number of tertiary enrolment in Zambia
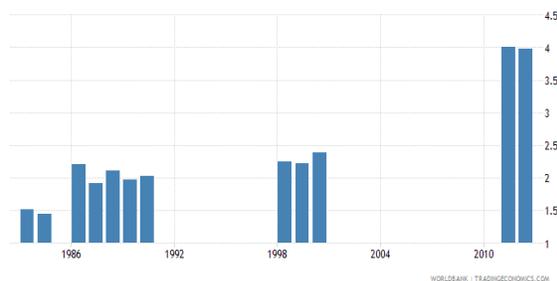
The enrolment figures in Zambia for tertiary education seem to be increasing and this presents an opportunity for eLearning implementation but the findings in the literature review show that the cost of internet technology is high as a result of lack of investment in ICT infrastructure. Internet service providers in Zambia depend on external providers and this could be one reason why the cost of internet in Zambia in relatively high compared to other developing countries. The Zambia Development Agency (ZDA) reports that the cost of a 1GB bundle of internet is ZMK 120 kwacha which is almost double the cost of the same bundle in countries such as Kenya (ZDA, 2018). This is a huge challenge for higher educational institutions for them to be able to implement profitable and successful eLearning programs.

VII. CONCLUSION

From the literature review and the discussions of the findings, the conclusion that can be drawn upon the analysis of the various authors is that the digital divide does have a huge implication on the implementation of e-learning in Zambia. The high cost of internet access and poor quality of internet speed are the biggest challenges that the successful implementation of eLearning in Zambia faces. Most of the literature that was reviewed indicated cultural issues as part of the major challenges. However, the majority of the findings were only focused on public Universities in Zambia without the inclusion of the private Universities and also not broadening the findings as a national challenge. Lack of Investment in the ICT sector has been discovered in this research as the reason why internet costs are high in Zambia. ELearning is a sleeping giant in the delivery of education in Zambia and if the government can invest more in ICT infrastructure then the education sector can use this opportunity to extend their services to places that they might not have a physical presence, especially in the rural areas. In conclusion, there is need for ZICTA to recommend to government to create deliberatepolicy that will encourage private companies to partner with government in the roll out of national ICT infrastructure so that the internet can reach all corners of the ten provinces of Zambia so that there can be internet access anywhere and for everyone.

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