

An Assessment of Factors Contributing to a Digital Divide in Mainstreaming E-learning in Higher Education — A Selected Case of a University in Bulawayo Province, Zimbabwe

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Abstract: The rapidity in the increase of technology innovation in education together with the sudden welcoming of COVID 19 has caused a need for integrating eLearning as a new learning normal for all. Technology literacy is a 21st Century skill. In the case of Zimbabwe, eLearning has been made mandatory in all its universities as an attempt to continue learning in the crisis situation. Implementation of eLearning 100% in Higher learning has revealed many opportunities to both lecturers and students. As valuable as this implementation has been, one cannot be oblivious of the many downsides associated with attempting to mainstream e-learning in higher education. Most of the problems that arise from mainstreaming revolve from the fact that not everyone has equal access to modern ICT technologies. ICT integration in all learning to some is still fairly new and difficult. A gap is therefore created between those learners who have access to the facilities necessary for e-learning and those who do not. The same fate is also suffered by the lecturers who do not have the resources. Therefore, efforts by the Higher learning institutions, government, NGO's and various stake holders may need to play a vital role in providing resources to bridge the gap. This paper seeks to make an assessment of the factors standing in the way of fully mainstreaming eLearning in the higher education system in Zimbabwe and hence clearly showing the presence of a digital divide amongst learners and also amongst lecturers. The study was conducted on a case study using of a selected higher learning institution using a qualitative research method. Open ended questionnaires were conducted with members of different departments. These members were chosen using purposive sampling. The study has a great contribution in that it identifies critical issues within higher education that create a digital divide and hence make it difficult to mainstream e-Learning in higher education. These issues if dealt with may therefore bridge the gap in the digital divide and eventually fully integrate and mainstream eLearning in higher education, creating a bright future for African Higher Education.

Key words: mainstreaming eLearning, digital divide, higher learning, ICT integration

1. Introduction

Globally and regionally eLearning implementation has seen a lot of traction taking place. According to Gaebel, Kupriyanova and Colucci (2014) in France, Italy, Portugal, Russia, Spain and Turkey 96% of universities have implemented eLearning. In South Asia Nepal. Almost all universities have not yet implemented eLearning

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prior to COVID19 and did not have infrastructure in place to support eLearning (Gautam & Gautam, 2020). In Tanzania Higher Learning Institutions have introduced modern technology and eLearning to its learners (Mbeya & Masue, 2020). In south Africa face to face learning has been predominant at most universities until universities were encouraged to find a way to shift to an online way of offering lectures online as from 18 March 2020 (DHET, 2020)

In the context of Zimbabwe, the education system has seen the adoption of eLearning in the past decade to be very slow paced. The rate at which both educators and students have been using eLearning has been at a snail pace based on quite a number of reasons (Chitanana, Makaza and Madzima, 2008). According to Mukeredzi and Mashininga (2020) soon after COVID 19 was declared a National Pandemic the Zimbabwe government ordered Universities to close and continue with lectures online. Taru (2020) declares that amongst students there is uneven access to the appropriate resources needed for online learning, primarily the gadgets such as computers and internet access. As a result, a gap is formed between those who have access to such resources and those that do not have the resources. Pick and Sarkar (2016) view a digital divide as digital inequalities that may exist between people, households, business or areas related to geography, hence mainstreaming eLearning in Zimbabwe has brought these digital divides.

2. Background and Literature Review

On 11 March 2020 the World Health Organization (WHO) declared the COVID19 disease as a Pandemic (WHO, 2020). As a result, the whole world had to follow suite and adjust to the new normal of doing things. The Zimbabwean education system was no exception. This entailed a learning phenomenon in which face to face learning was not conducive anymore and had to continue using some form of eLearning. Chigwada (2020) explains that Higher Learning institutions made use of mainly the google suite and conducted online classes using Google Classroom. This allowed the students to be sharing information and submitted written assignments. In addition to google classroom most higher learning institutions used video conferencing applications such as zoom and Microsoft Teams.

Kereluik, Mishra, Fahnoe and Terry (2013) identify technology literacy is one of the important 21st Century skills. This therefore directs eLearning into a realm of skills which is necessary to keep up with the demands of the ever-changing world. Nager and Atkinson (2016) also suggest that most of the jobs in the market are now technology driven, such as manufacturing, marketing, health, banking, management and education. Most courses are based on eLearning.

UNESCO (2018) mentions that ICT plays a vital role in achieving one of the 2030 Sustainable Development Goals (SDGs), the specific goal which is Goal Number 4 which focuses on quality education. Mainstreaming e-learning in higher education will therefore subsequently mean that the way how instruction is given to learners is in line with UNESCO quality education recommendations.

The Herald (2019) reports that in Zimbabwe there is an approximately figure of 83.3% mobile penetration while Deloitte (2016) reports that interestingly approximately 70% of phone owners in Zimbabwe look at their phones 5 minutes after they wake up and approximately 52% look at their phone 5 minutes before they sleep. This alone suggest and qualifies the convenience of learning using mobile devices. This therefore means that e leaning can be conveniently used by Zimbabweans as quite a considerably large amount of people are constant users of mobile devices.

Another reason why eLearning can be mainstreamed is because eLearning actually keeps learners interested and motivated and again caters for self-regulated learning and improves performance of learners (Milham, Thakur & Malan, 2014). With the exciting features and looks of some of the graphics and layouts learners are less bored and their concentration is kept as they learn.

2.1 Resources needed for Online Learning

Pennsylvania State University (2021) gives us an account of the technical requirements for efficient eLearning. These include A computer with an Operating system (Mac OS and Windows). The lecturer or course facilitator may want to produce eLearning material that is compatible with a many operating systems as possible as students tend to use different types of devices using different operating systems. Processor Intel i3, 2Ghz or higher and Memory 2gb RAM or higher. This is to allow facilitator or students to be able to create quality material needed for teaching such as videos or podcasts) or as well demonstrations of use of subject specialized software. Some Hard drive space of a minimum of 2gb can be preserver for storage of files. A browser with relevant plugins such as chrome is needed to allow students to go surf the internet. An internet connection such as broad band is a definite requirement for access to the internet. A printer to print out work as well as a scanner to convert the hardcopy to softcopy. Webcam, Speakers, Soundcard and Microphone are requirements needed for video conferences will DVD ROM may be required for installation of some software's.

Apart from the physical requirements needed for e-learning there are other set of requirements needed. These are the skills and competencies. Grand Valley State University (2021) identifies the following technology proficiency skills. Basic Computer skills, emailing a well as attaching files, usage of web browsers, using search engines such as google and yahoo, downloading and installing software's, usage of Word Processors, Presentation software's and other processing software, using document scanners and the ability to be self-directed in learning.

2.2 Attitudes Associated With eLearning

Martin and Noakes (2012) after conducting a study on Estonian universities conclude that based on feedback from students eLearning assists learners by its flexibility and saving time by provision of materials. As a result, their attitude was very positive. In the same light Al-Doub, Goodwin, Al-Hunaiyyan (2008) conducted a research in Kuwait Higher Education Institutions and found that females valued using eLearning resources more than males. Regardless of gender almost half of the students declared their willingness to use e learning.

Krishnakumar and Kumar (2011) did a study on teachers of higher education attitudes towards eLearning and concluded the following teachers in higher education who have computer skills against those with no computer skills have different attitudes. The conclusions were that mean difference is more in favor with those with those who possess knowledge. At the same time teachers with access to internet at work were compared with teacher with access to internet. The study revealed that mean difference between the two was in favor with teachers that had access to both internet access at work as well as internet access at home.

2.3 Challenges associated with E-learning

Without a shadow of doubt the cost of mainstreaming eLearning is a big contribution to the digital divide. These costs may vary from setting up of the physical resources such as laptops, smartphones and internet connections (Mbeya & Masue, 2020). Simply put, there is a gap created between those that can afford and those that cannot afford. The other financial constraints also have also led to inconsistent electrical power.

There has been the problem of access to internet. According to International Telecom Union (2019) only 19%

of individuals in the least developing countries have internet access as compared to the 87% that is in developed countries. Without access to internet eLearning becomes almost impossible as almost all eLearning platforms rely on the internet.

Lecturers are people comprised of diverse age groups. Some are young adults whilst for institutions some there is a mature population. Niehaves and Plattfaut (2010) argues that the more mature members have not fully integrated themselves with the latest technology. This can therefore be a challenge if e learning mainstreamed as it needs a reasonable amount of ICT integration. As a result, the digital divide is created by the age gap

Mlitwa & Van Belle (2011) lament that in Higher Learning when it comes to eLearning there is poor coordination as well as insufficient technical support. This applies to both to learners and lecturers that both at times find it hard to get assistance while using eLearning. In essence those that are technically proficient will not suffer as much as those that have weak ICT skills (OERAfrica, 2014). The ICT savvy excel while the lesser ICT savvy have challenges, which creates the divide.

One of the biggest challenges lies with policy. Most University have an ICT policy but not a clearly spelt out eLearning policy. Isabirye and Dlodlo (2014) sadly note that a lack of a university policy may have various problems. If policy is not there, usually there is resistance to change and lack of serious implementation.

3. Methodology

The study was qualitative study and followed an interpretive paradigm and also followed a case study research design (Denzin and Lincoln, 2011). The type of sampling which was used was purposive sampling which included six lecturers(2 from each department) in faculty of education and twelve students (two first year undergraduates, two second year under graduates, two final year undergraduates, two first year masters post graduates and two final year masters students all under the faculty of education The data was collected through open ended questionnaires online by use of form designed by google forms. The data was transcribed then later analyzed thematically. Ethical considerations were well maintained throughout. The researcher ensured privacy, confidentiality, honesty, informed consent and protection from harm. Trustworthiness and credibility were also maintained. Participant's identity was also concealed by naming them using codes, Lecturers (LC1-LC6) and Students (ST1-ST12).

4. Results/Findings

The participants were asked, why eLearning has been mainstreamed.? Some of the lecturers' responses were as follows.

"To embrace technology in teaching and learning as response to COVID-19 pandemic lockdown." LC1

"because of covid regulations" LC2

"because of Covid-19 restrictions, for blended learning, responding to technological advancements" LC3

"It is technology movement other institutions are moving in that direction, but mostly due to covid 19 induced lockdowns" LC4

The lecturers were also asked to what extent is the University resourced to fully implement eLearning? Some of the lecturer responses were as follows:

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"The institution's resources are limited to fully embrace e-learning. Lecturers and students are finding it difficult to effectively implement e-learning." LC1

"To a lesser extent" LC2

"Not well resourced" LC3

"It has Wi-Fi on compass but fewer gadgets." LC4

The lecturers were also asked to what extent are the attitudes of the students and lectures when it comes to e learning? Some of the lecturer responses were as follows:

"Some lecturers and students have negative attitude towards e-learning because of lack of skills and competences in use of technological devices during the teaching and learning process. However, other lecturers and students find e-learning flexible and they have shown much interest in implementation of e-learning." LC1

"Even if lectures are positive, students have negative attitudes" LC2

"Positive but lamenting lack of resources" LC3

"Lecturers like to use it but have no connectivity at their homes which discourages them." LC 4

The lecturers were also asked, what are the challenges they have when implementing eLearning? These were asked in order to find out the gaps or divides that exist. Some of the lecturer responses were as follows:

"There are a lot of challenges which include: lack of electronic devices to use during the teaching and learning process, poor internet connectivity, lack of data bundles, sporadic power cuts and some cases students might be in remote areas where there is no internet connectivity and no electricity at all, no network and the like" LC1

"For Students data bundle, network, for lecturers: gadgets, office space, not all of the students are accessible" LC2

"Lack of compatible gadgets, insufficient data bundles, power cuts, poor connectivity, lack of adequate training." LC3

"Lack of resources especially hardware" LC4

Students were also asked a series of questions. Initially students were asked why they is the need to mainstream eLearning. Some of the students' responses were as follows:

"Because of The COVID-19 induced lockdown which has reduced face to face learning at the institution and also because of technological advancement and changes" ST1

"The rationale in the implementation of e-learning at NUST was a hurried program due to the outbreak of COVID-19. The restrictions that came along to contain the pandemic was due to a series of lockdown that completely shut down all businesses. The lockdowns put absolutely everything to a halt and could have tremendous downfall of the institution and an emotional dent to the students' undertaking studies. Hence the introduction of e-learning though it was a rushed decision made by the institution. I believe it was rushed because of the way it was rolled out, however no one can be blamed, it was because of the outbreak. The COVID-19 forced everyone to stay at home, hence it was not feasible for students to attend face to face lectures, hence the introduction of e-learning (online learning). However, I believe there are other factors that put pressure to the institution such as rapid growth in ICT — advances in technology and probably the other reason was to gain a competitive advantage over other rival institutions' ST2

"Because of COVID 19" ST3

"Its technology movement other institutions are moving in that direction, but mostly due to covid 19 induced lockdowns" ST4

The students were also asked to what extent is the University resourced to fully implement e-learning? Some of the student responses were as follows:

"To a lesser extent because the institution cannot afford to buy gadgets for students and also data" ST1

"About 60% of lecturing staff are equipped with institutional laptop, each section/office/department has at least 1 desktop computer, all offices connect to internet either cable or Wi-Fi or both connectivity"ST2

"I think the institution fall short in that scenario judging by e.g., the university's portal which at times is inaccessible, Infrastructure: the university's structures have been left incomplete some buildings lying idle. I am not sure how much training was given to lecturer's wen rolling out the e-learning program. Judging from what I have been exposed to, the university fall short in terms of robust software applications. Lessons are delivered on Google classroom and WhatsApp. I personally believe that WhatsApp is more of a social app and not much ideal for formal learning. Other apps should be introduced, the institution is still at its infancy stage in terms of rolling out e-learning."ST3

"Very low resource base" ST4

The students were also asked to what are the attitudes of the students and lectures when it comes to e learning? Some of the students' responses were as follows:

"Most of the teachers or lecturers have a negative attitude towards using e-learning because some have technophobia since they do not know to operate some technological gadgets" ST1

"It's a mixed bag. Most lecturers are embracing the new way of teaching and learning. Initial the old school were against it preferring to keep on with their old way of teaching. On students, the same can be said, resistance is noticed as some rarely visit their portals." ST2

"I believe it is a welcomed platform as lecturers constantly engage students from time to time giving feedback" ST3

"they're very keen to go for it, the attitude is somewhat positive, but there are plenty of stumbling blocks" ST4

The students were also asked, what are the challenges they have when implementing eLearning? These were asked in order to find out the gaps or divides that exist. Some of the students' responses were as follows:

"Network problems and lack of knowledge on how to deliver lessons online and lack of gadgets" ST1

"Not all lecturers and students have laptops, tablets or smartphones to allow them to access the LMS from wherever they are, some smartphones are not compatible with specifications, Availability of internet connectivity at home or wherever one is and Availability of data bundles for both lecturers and students"ST2

"Data cost, type of devices used by students. Students are the most affected by data prices as they do match their incomes. Only a handful afford Wi-Fi and devices (phones) that support 4G or LTE technologies for fast broadband speeds. The other challenge is network coverage. And lastly basic technical skills — quite a number of students lack these basic skills"ST3

"Both don't have e-gadgets to begin with, no bundles, limited bandwidth, confusion"ST4

5. Discussions

The findings of the reveal quite a number reasons why eLearning has to mainstreamed. The most common reason was that eLearning was mainstreamed as an alternative way to continue learning during the COVID19 Pandemic in higher learning institutions. These findings are in cohesion with Mukeredzi and Mashininga (2020) who explain that that eLearning was done in response to the deadly COVID19 pandemic. Another reason which

emerged why eLearning has to be mainstreamed is the idea that eLearning as inevitable as rapidity of the change in technology. As technology changes so do the ways in which we do things and that includes learning. This is in line with the ideas of Atkinson (2016) that emphasize that society is technology driven and all aspects in society are based on modern technology, with eLearning being no exemption.

When it came to how resourced enough the university was when it comes eLearning the majority of the participants expressed their disappointment on the low level of resourcing the university. Most of the participant revealed that the university did not have the necessary resources that are needed to implement eLearning. The participants pointed out there is no equipment and questioned the training of some lecturers on use of eLearning. Pennsylvania State university (2021) and Grand Valley State University (2021) clearly point out the technical gadgets needed for eLearning and as well as the ICT skill set needed for e-learning.

When it came to the attitudes towards eLearning the responses of both the students and Learning were mixed. Some lecturers and students emphasized that the uptake seemed somewhat positive but limited by resources. Another set of participants exposed that the attitudes were a bit negative for both lecturers and students and many even went on to highlight some reasons for this such as lack of skills, resources and resistance by the elderly lecturers and elderly students. This point goes hand in hand with some insight given to us by Krishnakumar and Kumar (2011) as they mention that lecturers who are more techno savvy have a more positive attitude towards mainstreaming eLearning in higher education. Niehaves and Plattfaut (2010) also echo a similar sentiment on elderly members not taking up eLearning as much as the younger population hence creating unfavorable attitudes.

Quite a number of challenges were mentioned by participants. These challenges actually become the factors that cause the gaps for the eLearning digital divide. Lecturers and students mentioned that they do not have gadgets in the form of laptops, computers, appropriate software's and a reliable electricity source. Some of the learners went on to express that some students are based in remote rural areas where electricity is not available. Mbeya and Masue (2020) clearly mention that cost of equipment needed to mainstream eLearning in higher education is one of the biggest challenges faced. As a result, those who can afford the gadgets and those that cannot afford are not on a level playing field when it comes to using eLearning. Participants also revealed that even though internet facility is there its very poor and very expensive. Data bundles are quite costly. Intl Telecom Union (2019) agrees with this notion as they confirm that in developing countries very few individuals have access to internet facilities.

6. Conclusions

The study examined the factors contributing to a digital divide in Mainstreaming eLearning in Higher Education in a University in Bulawayo Province. The study was conducted on both learners and students. The study concluded that there are many factors that contribute to the digital divide. These included a lack of internet access, lack of electrical power, lack of ICT skills needed for eLearning, lack of computer gadgets, attitudes of learners and students and an elderly population. It was found that the students in the faculty of education who are teachers or teachers in training together lecturer have mostly a challenge with costs involved in mainstreaming e-learning, internet access, skills to use eLearning. These inequalities lead to negative attitudes in mainstreaming e-learning. The study recommends to the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development that it should work together with all stakeholder in making all efforts to ensure that digital gap is bridged in Higher Learning for both students and lecturers so as to obtain quality education for all

students.

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