Impediments of E-learning Adoption in Higher Learning Institutions of Tanzania: An Empirical Review

Wilson Pholld Mwakyusa
Tanzania Institute of Accountancy, Mbeya Campus, P.O.Box 825, Mbeya

Neema Venance Mwalyagile
Mzumbe University, Mbeya Campus College, P.O.Box 6559, Mbeya

Abstract
It is experienced that most of the Higher Learning Institutions (HLIs) in developing countries including Tanzania fails to fully implement e-learning system as a an alternative method of delivering education to a large population in the universities. However, some of HLIs are practicing the blended method by which both e-learning and traditional teaching methods are employed. The study therefore, aimed to explore the most critical impediments for e-learning adoption at (HLIs) in Tanzania. Moreover, most of the HLIs in developing countries are facing with the problem of poor ICT infrastructures, lack of experts in ICT solutions and internet connectivity. This study made an empirical review to a total of 18 relevant literatures conducted in HLIs of Tanzania in order to critically indentify the most critical impediments. It is found that there is a serious problem of technological infrastructures including lack of computers in HLIs to save students all time, low internet bandwidth, low ICT- competence among the educational stakeholders which impede the successful e-learning implementation. Furthermore, it was found that most of the HLIs they had no e-learning policy in operational as a result there is lack of technical and managerial support towards the new e-learning technology. In the end the study proposed the strategies that direct the road towards the success of e-learning implementation at HLIs in developing countries including Tanzania.
Keywords: e-learning, e-learning adoption, ICT, impediments, Higher Learning Institutions

1.0 Introduction
Recently, Most Higher Learning Institutions (HLIs) insist on the effective use of Information and Communication Technology (ICT) in the process of teaching and learning activities in order to meet a demand of education so as to mitigate the shortage of resource persons (UNESCO, 2016). Therefore, the adoption of E-Learning system among the Higher Learning Institutions (HLIs) is the way forward to continuously enhance knowledge and career development among the learners and lecturers. Worldwide, e-learning in HLIs aimed at enhancing and support their teaching and learning process at a low cost possible (Kisanga & Ireson, 2015; Meenakshi 2013). Many studies provides the concept of E-Learning definitions in different perspectives such as (Sangrà, 2011; Sangrà, 2012; Jan et al., 2012). This study focused at e-learning as the use and or application of ICT tools such as computers, software and internet in the process of teaching and learning activities in higher learning institutions. In this sense, e-learning system is considered to help in improving the ability of accessing training, interaction and communication to facilitate the learning process. So the adoption of e-learning systems and technology will enable education to reach majority of learners and increase ability of learners in different geographical positions to easily access education for instance through the use of television, computers and internet. Therefore, to cover the gap of increasing demand of higher education against the limited number of resources i.e. Lecturers then e-learning is considered as an immediate solution for HLIs.

Although e-learning system is very important in simplifying means of educational delivery in HLIs, various studies revealed that there are many challenges of which impede the implementation of the system in HLIs of developing countries including Tanzania. For instance some challenges reported are ICT infrastructural problem (Mtebe & Raisamo, 2011; Sife et al., 2007; Unwin et al., 2010; Sanga et al., 2013), there is no enough technical and managerial support (Sife et al., 2007; Mtebe & Raisamo, 2014; Mtebe & Raphael, 2013), lack of computer and or e-learning knowledge among the educational stakeholders (students and lecturers) as well as resistance to change because of fear to new technology (Mtebe & Raisamo, 2011; Kisanga & Ireson, 2015) and unreliable electricity power, bandwidth limitation and high cost of accessing internet (Unwin et al., 2010; Mtebe & Raisamo, 2014).

1.1 Problem statement
E-learning system in developing countries is still in its infancy stage. The status of e-learning adoption in developing countries is not appealing. It is evidenced in the study of Qureshi, et al., (2012) in their empirical review that most of HLIs in developing countries suffer from the limited resources and less technical expertise compared to developed countries. In addition, HLIs which attempted to fully adopt e-learning system failed due to poor strategic approach, resistance to change, cost of technology itself and poor delivery of courses (Ibid).

Similarly, Nawaz & Kundi, (2010); Kopyc, (2007) they empirically found that HLIs in developing countries use computers mainly for composing text by ms-word application, searching over the web and sending e-mail while very few of them use to enhance the e-learning activities. Meanwhile, in developing countries like Tanzania there is a little direct use of ICT technologies in actual teaching and learning practices such as e-learning.

In response to the e-learning or ICT solution adoption in the country, the government of Tanzania encourages the use of ICT from both private and public organizations. Therefore, there is an emphasis to invest heavily on ICT with special attention to Higher Learning Institutions (HLIs) to support the process of E-learning implementation. Consequently, the government of Tanzania offered a Tax-exemption on ICT facilities so as to motivate users and institutions to purchase as well as use ICT equipments in learning perspectives (URT 2003). Similarly, the government sponsored the project of laying 10,000 kms of fiber optic cable to more than 100 districts all over the country. In this concern, the adoption of e-learning is therefore considered to be the effective way to reach many learners inexpensively, as well as taking the technology as a competitive advantage of utilizing telecommunication networks and ensuring sufficient resources and skilled staff.

Despite the government`s effort and support, yet there are numerous e-learning system adoption impediments identified by various researchers, of which might be difficult to accommodate them at a time. This is due to the fact that resources available are limited such as ICT experience and expertise, support fund, internet access and ICT infrastructures. E-learning technology in Africa with special attention to Tanzania is still in its infant stage. Consequently, the impediments identified might continue to exist without an immediate solution. Therefore, this study aimed at; Firstly, assessing the critical issues and challenges that critically facing the e-learning adoption among the HLIs in Tanzania. Secondly, propose the possible adoption strategies that shall help the HLIs as the main practitioners of the e-learning system to reduce the identified impediments through the effective use of the resources currently available. Moreover, these objectives are expected to answer the questions; 1. What are the critical impediments of e-learning adoption in HLIs in developing countries? 2. What are the possible strategies that can help HLIs in Developing countries to implement e-learning successfully?

2.0 Literature Review
2.1 Empirical Review
This study attempted to review the relevant literatures already exist in the industry. According to Mtebe & Raisamo (2014) the enrolment of student in HLIs is highly increasing which implies that there is an increase of higher education demand. This is derived from the massive increase in number of students in secondary level education that more than 34% of populations in the country are going to secondary school. In response to E-learning, Secondary Education Development Program II (SEDP II) (2010-2017) insisted on the expansion and improving the use of ICT for teaching and learning as one of the strategy to accommodate the increasing number of students in HLIs (URT, 2010).

2.1.1 Issues of E-Learning in developing countries
The adoption of E-learning system in the process of teaching and learning in HLIs needs to be used by the skilled personnel including students and lecturers. This is due to the fact that e-learning need a certain level of technical understanding apart from inadequate of resources. Therefore, shortage of experts in e-learning industry in developing countries significantly contribute to the e-learning technological issues and hence less use of the ICT systems (Mnyanyi et al., 2010; Ssekakubo et al., 2012; Sife et al., 2007; Mtebe & Raisamo, 2011).

Moreover, a critical review of Andersson & Grönlund, (2009) categorized the challenges of e-learning facing developing countries into four categories as follows; **1**.*Course challenges* in terms of subject content design in relation to the chosen pedagogical model or mode of delivery and availability of educational resources. **2**. *Challenges related to characteristics of the individuals* (Lecturer and or student) in terms of motivation towards the e-learning system, technological confidence of using ICT systems and academic confidence about the lecturer or students self-efficacy and ability to study and accomplish the course. **3.** *Technological challenges* in terms of technology choices like computers and Learning Management System (LMS) and its accessibility, reliability of internet connection and limited bandwidth. Also in this area the cost of accessing these technologies seems to be the critical hindrance factor specifically in developing countries since most of HLIs cannot afford. Furthermore, most of the Information Systems (IS) are not designed for developing countries environments therefore, customization to fit for instance African requirements in terms software and interface design is real expensive. **4.** *Contextual challenges* these are in terms of organizational, cultural and societal challenges about the provision of regular training of teachers and other staffs specifically at the point of building critical knowledge within the organization. In addition Andersson, (2008) further added the challenge that there are no enough support in terms of support of students from faculty, Social support for student, support for faculty, and support from employer towards the e-learning process. To the best of e-learning knowledge, the challenges explained above are found to be the good predictor of the success or failure of an e-learning system in the teaching and learning process.

Meanwhile, there are challenges that hinder the successful adoption of e-learning system in developing

countries. For instance Kenyan higher learning institutions in study of Tarus et al., (2015) found some challenging issues identified during the implementation of e-learning in Kenya such as; Inadequate ICT and e-learning infrastructure, Financial constraints, Lack of affordable and adequate Internet bandwidth, lack of operational e-learning policies, Lack of technical skills on e-learning and e-content development by the teaching staff, Lack of interest and commitment among the teaching staff to use e-learning and amount of time required to develop e-learning content. These challenges were extracted from the 127 respondents participated in the study. Similarly, Tarus & Gichoya, (2015) identified the three important components such as technological components (network connectivity and Internet bandwidth; and reliable learning management system (LMS)), organizational components and pedagogical components as the necessary tool for successful implementation of e-learning. Also the study of Touray et al., (2013) identified the ICT adoption barriers in Gambia: to mention few; low income, lack of research and development, low internet bandwidth, lack of ICT access, obsolete technologies, lack of maintenance culture, and lack of ICT skills.

In the case of Nigerian higher institutions as reported by Olugbeko & Izu (2013) that "The e-learning techniques mostly adopted by most of the Nigerian institutions are in form of prepared lectures on a CD-ROM that can be played as at when the need arises" p.206. This is happening simply because number of computer systems is not adequate such that they can accommodate enough students and thus making e-learning process not to be interactive accordingly. Moreover, most of students have lower socio-economic family background with very low experience and exposure in ICT solutions. This directly implies that they cannot always afford a computer and internet access at home while they are studying. As a result the existing situation forced students to opt for public internet cafés of which also faces the problem of low bandwidth which reduce the smooth flow of e-learning in the country.

In the study of Qureshi, et al., (2012) in Pakistan University identified the barriers and challenges of implementing e-learning. The challenges identified are: **Technology difficulties** *such as availability of latest technology, fast Internet connection, and uninterrupted supply of electricity, maintenance, administration, security and absence of technical support*; **Limited access to Computers** - *in terms of availability of computers for students at all time within the university campus as well as at home. This is due to the fact that most of the families in developing countries cannot have direct access to computers hence it is difficult for students to accept and use of e-learning technology*; **Level of awareness and computer literacy** – *the existing knowledge of computer technology and the general understanding of e-learning technology motivate students and other learners to really participate in e-learning* otherwise will read to high resistance to change from traditional means of educational delivery. Generally, from the literatures is found that lack of ICT skills and inadequate ICT-infrastructure are the critical impediment for e-learning implementation in HLIs in developing countries.

2.1.2 E-learning at HLIs in Tanzania
In particular, HLIs in Tanzania are lagging behind in the practice of e-learning as an alternative means of delivering education. However, in the study of Mtebe & Raphael (2013) and Ndume et al., (2008) found that HLIs in Tanzania particularly UDSM employ the blended learning in which CDs was found to be effective alternatives approach to learning resources due to limited and slow internet speed. As a result face-to-face learning technique still exists while ICT applications are just considered as support in enhancing the learning activities. Similarly, the study of Nyandara, (2012) found that the Open University of Tanzania (OUT) instructors use ICT tools like computers and internet technology for teaching, searching learning materials, communication (staff email system) and setting examinations than using them for developing study materials and presentations to students. Also it has been observed that the access of internet is burden to student since there is a hidden cost of accessing internet within and out of the university learning centers.

Similarly, Sokoine University of Agriculture (SUA) has implemented Moodle software. This is the open source Learning Management System (LMS) which designed to implement and facilitate e-learning system (Sife et al., 2007). Also Mzumbe University (MU) and Muhimbili University of Health and Allied Science (MUHAS) have implemented an e-learning with purpose of facilitating learning and research process for both lecturers and students (Nagumwa & Lwoga, 2012). However, the e-learning system is not completely in practices due to the reason that there still no enough computers and other ICT tools like internet to accommodate all students and staff all the time. MUHAS introduced the e-learning system in 2006 but did not end up successfully due to the various challenges (Nagumwa & Lwoga, 2012). Therefore, like other universities in the countries which have already implemented e-learning system they both use blended learning approach (e-learning systems, CDs and traditional teaching) as described by Mtebe & Raphael (2013) and Mtebe and Raisamo (2011).

Despite the fact that most HLIs in Tanzania already have Local Area Network (LAN), and internet access although at limited level and lecturers' offices are equipped with computers but still the infrastructures in place are not regularly updated. The study of Unwin et al., (2010) in digital learning management systems in Africa argued that the adoption and use of ICT system initiatives mostly does not succeed in the sense that, there is lack of considerations of updating the requirements of the intended users as well as putting the current IT-

infrastructures. Therefore it is argued that, the fundamental impediment of e-learning implementation mostly is lack of access to ICT infrastructure and thus no e-learning can be practiced in such environment (Rivers et al., 2015). In this spirit HLIs must consider strategic development plan to mitigate the impact that can also hinder the proper e-learning implementation; for instance stability of electricity power, bandwidth limitations (Mbwette, 2009; Unwin et al., 2010; Mtebe & Raisamo, 2014) and availability of computers in the computer rooms.

2.1.3 The impediments of e-learning adoption at HLIs in Tanzania
A total of 18 previous studies in Tanzania was collected and reviewed accordingly and the findings were summarized in **table 1** below. These impediments helped the researchers to identify the most critical factors that significantly impede the smooth adoption and implementation of e-learning system in HLIs of Tanzania.

Table 1: The impediments extracted from the previous studies about e-learning adoption in Tanzania

Impediments Identified	Sources
Technological impediments	
• Inadequate ICT infrastructures like computers and internet technology	Mbwette, (2009); Bakari, (2009); Mtebe & Raisamo, (2011); Sife et al., (2007); Sanga et al., (2013); Nyandara, (2012); Ndume, et al., (2008); Nihuka & Voogt, (2011); Mnyanyi and Mbwette, (2009); Nagumwa & Lwoga, (2012); Nihuka, (2011); Ngimi, (2013); Kisanga & Ireson, (2015); Mtebe & Raisamo, (2014); Mtebe & Raphael, (2013)
• Limited access to technologies	Mnyanyi & Mbwette, (2009); Ndume, et al., (2008); Nagumwa & Lwoga, (2012); Nihuka, (2011); Nihuka & Voogt, (2011); Ngimi, (2013); Nyandara, (2012); Sife et al., (2007); Kisanga & Ireson, (2015); Mtebe & Raisamo, (2014); Mtebe & Raphael, (2013)
• ICT competence	Mnyanyi and Mbwette, (2009); Nihuka, (2011); Ngimi, (2013); Sife et al., (2007); Kisanga & Ireson, (2015); Nyandara, (2012);
• Limited bandwidth(Low internet speed)	Mnyanyi and Mbwette, (2009); Ndume, et al., (2008); Nihuka, (2011); Ngimi, (2013); Nihuka & Voogt, (2011); Mtebe & Raisamo, (2011), Nyandara, (2012)
• Unreliable electricity power	Mnyanyi and Mbwette, (2009); Nihuka, (2011); Kisanga & Ireson, (2015)
• ICT literacy and knowledge management	Nyandara, (2012); Ndume, et al., (2008); Mnyanyi and Mbwette, (2009); Nagumwa & Lwoga, (2012); Mtebe & Raisamo, (2014); Mtebe & Raphael, (2013)
• Obsolete technologies (available systems are not updated regularly)	Nagumwa & Lwoga, (2012); Mnyanyi te al., (2009); Nihuka, (2011); Nihuka & Voogt, (2009, 2011); Sife et al., (2007);
• Lack of maintenance culture	Nihuka & Voogt, (2009); Kisanga & Ireson, (2015)
Support impediments	
• No enough technical and managerial support	Nyandara, (2012); Ndume, et al., (2008); Nagumwa & Lwoga, (2012); Ngimi, (2013); Sife et al., (2007); Mtebe & Raisamo, (2014); Kisanga & Ireson, (2015); Mtebe & Raphael, (2013)
Cost impediments	
• Technology	Ndume, et al., (2008); Nagumwa & Lwoga, (2012); Nihuka, (2011); Kisanga & Ireson, (2015);
• High internet access rates	Nyandara, (2012); Ndume, et al., (2008); Nihuka & Voogt, (2011); Sife et al., (2007);
• No enough funds	Nyandara, (2012); Sife et al., (2007); Kisanga & Ireson, (2015); Mtebe & Raisamo, (2011);
Institutional Issues	
• Knowledge Management	Ndume, et al., (2008); Kisanga & Ireson, (2015);
• Lack of ICT-systems research and development	Mnyanyi and Mbwette, (2009); Nihuka, (2011); Sife et al., (2007); Kisanga & Ireson, (2015); Mtebe & Raisamo, (2011);
• Lack regular ICT training to lecturers and staff	Mnyanyi and Mbwette, (2009); Ndume, et al., (2008); Nagumwa & Lwoga, (2012); Nihuka, (2011); Ngimi, (2013); Sife et al., (2007); Kisanga & Ireson, (2015); Mtebe & Raisamo, (2011);
• Resistance to change	Mnyanyi and Mbwette, (2009); Kisanga & Ireson, (2015);
• Lack of institutional e-learning policy	Mtebe & Raisamo, (2014)
Curriculum design Challenges	
• Availability of educational resources	Nagumwa & Lwoga, (2012); Nihuka & Voogt, (2009, 2011); Ngimi, (2013); Mtebe & Raisamo, (2014); Mtebe & Raphael, (2013)
• Delivery mode (Learning style)	Nihuka & Voogt, (2011); Nihuka & Voogt, (2009); Ngimi, (2013); Sife et al., (2007);
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Source: Extracted from Literature Review (2016)

3.0 Methodology
The study employs quantitative technique in which intensive literature review was conducted to different 18 related literatures about the challenges of adopting e-learning at HLIs in Tanzanian environment. Based on these literatures, the impediments that appeared most frequently are the critical challenges which have been reported

by many researchers and are considered as the impediment factors for successful adoption of e-learning in Tanzanian environment. However, other relevant literatures was also selected from various sources explaining the status of e-learning in HLIs of developing countries like Kenya, Nigeria, Gambia, Uganda and Pakistan.

4.0 Findings and Discussions
4.1 Findings
Table 2 below summarizes the impediments as reported by 18 various researchers in Tanzania about the challenges that significantly impede the e-learning adoption successfully.

Table 2: Summary of the frequency of the impediments from literatures

Impediments Reported	Frequency	Percentages
Inadequate ICT infrastructures like computers and internet technology	16	88.9%
Limited Access to technology	11	61.1%
ICT competence	7	38.9%
Limited bandwidth	7	38.9%
Unreliable electricity power	3	16.7%
Obsolete technology and lack of maintenance culture	8	44.4%
No enough technical and managerial support	8	44.4%
Cost of technology access i.e. internet and computer	8	44.4%
Knowledge Management	2	11.1%
Lack of ICT-systems research and development	5	27.7%
Lack of regular ICT training to lecturers and staff	8	44.4%
Resistance to change (Fear of ICT solutions)	2	11.1%
Availability of educational resources	6	33.3%
Delivery mode (Learning style)	4	22.2%

Source: Extracted from literature review (2016)
Note: The percentage does not add up to 100% because of multiple findings from literatures

The findings summarized in table 2 above revealed that the problem of ICT-infrastructure is mostly reported by 16 literatures out of 18 which is equivalent to 88.9% followed by limited access to technology 11 (61.1%), Obsolete technology and lack of maintenance culture 8(44.4%), inadequate managerial and technical support 8(44.4%), Cost of access such as internet and computers 8 (44.4%). Another challenging factor for effective adoption of e-learning system in HLIs in Tanzania is educational resources. They are not readily available. This is reported by 33.3% of literatures. Similarly, it is evidenced that there is low ICT- competence together with low internet bandwidth which was both reported by 7 literatures out of 18 which is equivalent to 38.9%. Therefore, this study reveals that ICT-infrastructure, limited access to technology, Cost of accessing technology such as computers and internet, lack of technical support and e-learning knowledge are the most critical impediments for successfully adoption of e-learning system in HLIs of Tanzania.

4.2 Discussion
4.2.1 Inadequate ICT- infrastructure
Frankly speaking, ICT infrastructure plays greater role in determining the success or failure of an e-learning system. This study found that ICT-infrastructures are the most impediments of successful e-learning implementation. This is basing on the fact that, e-learning depend on ICT tools like availability of enough computers to students and lecturers. Therefore, limited access to technology and the ability to operate these systems all the time is also contributed by inadequate of ICT infrastructure. These findings are relevant to the study conducted by Andersson, (2008) that most of ICT solutions in developing countries are faced with inadequate ICT-infrastructure as a result it is difficult to excel. Similarly, Tarus & Gichoya, (2015) and Tarus et al., (2015) at HLIs in Kenya also faced with technological challenges which hinder the quality and successful implementation of e-learning system.

4.2.2 Inadequate technical and managerial support
In case of inadequate technical and managerial support as an impediment, it is found that the management support is not strongly invested in ICT- research and development as the result there is low technology confidence to the most of educational stakeholders. To make the point clear, the study found that inadequate of ICT-training to lecturers is reported by 8 out of 18 literatures equivalent to 44.4% as an impediment of e-learning. Therefore, this is interpreted as the outcome of inadequate of technical and managerial support; as a result there is low level of ICT knowledge (Mtebe & Raisamo, 2011) among e-learning practitioners. Consequently, there are very few technical experts who can support the e-learning user in the entire society of HLIs (Kisanga & Ireson, 2015)

It is well known that for any education institute must have better resource persons. This is possible if,

they are exposed to good and quality education and training that will improve and activate an inquisitive mind in order that, they can continue with research and development while updating with new technology. On the other hand poor support in technology eventually increases and or create fear towards ICT solutions eventually lose interest and commitment to use e-learning (Tarus et al., 2015) and hence resistance to change. Similarly, Ssekakubo et al., (2011), Ahmed, (2010) and Unwin, et al., (2010) findings support that effective management support and other support services are technically important factors in any ICT solution implementation and acceptance of e-learning technology in HLIs.

4.2.3 Limited internet access together with the cost of accessing internet

Other impediments of e-learning in Tanzania as report by the most of authors are the limited access to internet together with the cost of accessing internet. The study is in line with the findings of Andersson, (2009) that low internet connectivity or speed is also the factor that impedes the practice of e-learning in HLIs. The Tanzanian experience shows that the problem of internet connectivity and difficulties in accessibility has been experienced because of unreliable electricity power. As reported in the literatures, unreliable electricity power supply is also the factor that contributes to the difficulties of accessing internet (Mtebe & Raisamo, (2014). This finding is consistent with the study of Andersson, (2008), Unwin et al., (2010) and Kisanga & Ireson, (2015) and Touray et al., (2013) that, the cost of accessing internet and the internet speed are also factors that hinder the e-learning implementation in HLIs of developing countries including Tanzania.

4.2.4 Obsolete technology and lack of maintenance culture

As per findings, lack of maintenance and obsolete technology are reported as impediments of e-learning by 44.4% of literatures. On the basis of the findings above, there is a significant problem of inadequacy of ICT-infrastructures in the country. However, it is evidenced that, the most of the HLIs in Tanzania already have Local Area Networks (LAN) though not all computers in computer rooms are working accordingly. This implies that, technologies which are already in place are not well maintained and updated regularly as a result they cannot save many students all the time. The study of Ssekakubo et al., (2011) supports this contention that ineffective maintenance and inefficient user support strategies are one of the critical impediments of ICT solutions implementation. Moreover, the most students are coming from low income family background hence they cannot always afford to maintain internet and computer systems at their home.

5.0 The strategies to improve e-learning adoption in HLIs

The study extracted the most four impediments that hinder the implementation of e-learning in HLIs from various literatures. Consequently, the study proposed the strategies that will support the e-learning implementation based on various literatures and experiences so as to mitigate the possible failures of implementing e-learning in HLIs as follows;

5.1 There should be a clear stated operational e-learning policy

The HLIs must always have clear defined ICT strategic plans that include the e-learning policies and their implementation strategies. It is observed that the e-learning policy framework is critical to the success of e-learning adoption and implementation in any higher learning institution (Tarus et al., 2015). The findings from literatures in Tanzania few studies identified the operational e-learning policy as impediments of the success of e-learning implementation. HLIs in Tanzania must develop an appropriate e-learning policy to put universities on competitive advantages to win e-learning.

5.2 Invest more emphasis on e-learning competence among educational stakeholders

The ICT competence is part and parcel of successful e-learning implementation simply because the ICT competence is a catalyst towards the new technology based on the advantages of e-learning in education institutions (Kenan et al., 2011). Therefore, HLIs should always find a way to educate the e-learning user so as to create technological competence, academic competence, motivation and commitment which will mitigate the resistance to change.

5.3 Enhancing technological and e-learning components

The improvement of ICT-infrastructure components should also focus on the adequacy of technological facilities to support the entire community of the user i.e. educational stakeholders. The HLIs should ensure that network and internet connectivity facilities are always accessible to support e-learning. The HLIs should enhance the skills on learners and teachers about e-learning pedagogical components (Tarus & Gichoya, 2015; Kenan et al., 2011) which are necessary for successful e-learning implementation. Furthermore, the technological adequate, quality of e-learning contents and ICT competence to stakeholders are the important components of e-learning success.

5.4 Invest much on ICT research and development
The experience of previous studies in developing countries shows that there is high failure rate of ICT solutions like e-learning system (Mtebe & Raisamo, 2014; Mayoka & Kyeyune, 2012). One of the reasons is lack of research and development in the ICT discipline as a result there is poor definition of need during the requirement analysis as per developing countries environment (Kenan et al., 2011). Consequently, the new adopted system will require a lot of customization which is expensive in such a way that HLIs cannot afford to maintain.

6.0 Conclusion
The roles of e-learning system to enhance the delivery of education to a large population in various HLIs are well experienced and documented to bridge the high increasing demand of higher education. However, the e-learning advantages are not directly realized in HLIs in Tanzania because are not fully practiced, since, there are a lot of impediments of implementing e-learning. The researchers extracted the most common impediments reported by various literatures in the country. Therefore, the study found that ICT-infrastructures are the most common impediments reported by many studies followed by difficulties in accessing technology including computers and internet. This was resulted due to the fact that there are no enough computers and limited bandwidth (low internet connectivity) in most of HLIs to accommodate student all the time.

Moreover the study end up with the basic strategies that will help the HLIs to improve and successfully implement the e-learning systems such as enhancing and updating the ICT facilities, investing in ICT research and development and e-learning components which was considered to be the important components for successful e-learning implementation.

REFERENCES
Ahmed, Hassan M. S., (2010). Hybrid E-Learning Acceptance Model: Learners Perceptions. Decision Sciences Journal of Innovation Education, Vol.8, No.2, pp.313-346

Andersson A., and Grönlund Åke, (2009). A conceptual framework for E-Learning in Developing Countries: A Critical review of research Challenges. *The Electronic Journal on Information Systems in Developing Countries (EJISDC), Vol. 38, No: 8, pp. 1-16*

Andersson, A. (2008). Seven major challenges for e-learning in developing countries: Case study eBIT, Sri Lanka. *International Journal of Education and Development using Information and Communication Technology (IJEDICT),* Vol. 4, No: 3, pp. 45-62.

Bakari, J. K., (2009). ICT at the Open University of Tanzania: Achievements, challenges and future prospects. Report presented during Rolling Strategic Plan review at Golden Tulip Hotel, 17th – 18th April, 2009, Dar es Salaam-Tanzania.

Bhalalusesa, R., Lukwaro, E.E. & Clemence, M., (2013). Challenges of Using E-learning Management Systems faced by the Academic Staff in Distance Based Institutions from Developing Countries: A Case Study of the Open University of Tanzania. *Huria Journal of OUT*, 14, pp. 89–110.

Kenan, T., Pislaru, Crinela and Elzawi, A. (2011). Comparing the impact of E-learning and ICT in Higher Education institutions in Libya and United Kingdom. In: International Conference on Education, Informatics and Cybernetics (icEIC 2011), Orlando, Florida, USA.

Kisanga, D., and Ireson G., (2015). Barriers and strategies on adoption of e-learning in Tanzanian higher learning institutions: Lessons for adopters. *International Journal of Education and Development using Information and Communication Technology (IJEDICT),* 2015, Vol. 11, Issue 2, pp. 126-137

Kopyc, S. (2007). Enhancing Teaching with Technology: Are We There Yet? *Innovate Journal of Online Education, Vol.***3**, No:2, pp.11-23.

Mbwette, T. S. A., (2009). A decade of delivery of open and distance education by the Open University of Tanzania in Africa and beyond. Paper presented in an International Forum on A decade of Distance Education in the Commonwealth: Achievements and challenges. Abuja-Nigeria.

Meenakshi, K., (2013). Importance of ICT in Education. *Journal of Research and Method in Education (IOSR-JRME),* vol. 1, no. 4, pp. 03-08.

Mnyanyi, C. B. F. and Mbwette, T. S. A., (2009). Open and Distance Learning in Developing Countries: The present and the future. *Open University of Tanzania*

Mnyanyi, C., Bakari, J., & Mbwette, T. S., (2010). Implementing e-learning in higher open and distance learning institutions in developing countries: the experience of the Open University of Tanzania. *Fifth International Conference of Learning International Networks Consortium (LINC),* Massachusetts Institute of Technology.

Mtebe, J. S. & Raisamo, R. (2014). Investigating Perceived Barriers to the Use of Open Educational Resources in Higher Education in Tanzania. The international review of research in open and distributed learning (IRRODL), Vol 15, No: 2

Mtebe, J. S. and Raisamo, R. (2011). Challenges and Instructors' Intention to Adopt and Use OpenEducational

Resources in Higher Education in Tanzania. *The International Review of Research in Open and Distance Learning (IRRODL)*, vol. 15, no. 1, pp. 249-271.

Mtebe, J. S. and Raphael, C. (2013). Students' experiences and challenges of blended learning at the University of Dar es Salaam, Tanzania. International Journal of Education and Development using Information and Communication Technology (IJEDICT), Vol. 9, Issue 3, pp. 124-136

Nagunwa, T. and Lwoga, E. (2012). Developing eLearning technologies to implement competency based medical education: Experiences from Muhimbili University of Health and Allied Sciences. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, vol. 8, no. 3, pp. 07-21.

Nawaz, A., and Kundi, G. M., (2010). Demographic Implications for the user Perceptions of E-Learning in Higher Education Institutions of N-W.F.P, Pakistan. *The Electronic Journal on Information Systems in Developing Countries* (EJISDC) Vol.41,No:5, 1-17

Ndume,V., Tilya, F. N. and Twaakyondo, H., (2008). Challenges of adaptive e-learning at higher learning institutions:A case study in Tanzania. *International Journal of Computing and ICT Research, Vol.* 2, No:1, pp.47-59.

Ngimi, H. M., (2013). Opportunities and Challenges of Integrating ICTs in Education Delivery in the Institute of Continuing Education at the Open University of Tanzania. M. ED (APPS) of Open University of Tanzania.

Nihuka, K. A., & Voogt, J., (2009). E-Learning Course Design in Teacher Design Team: Experiences in the Open University of Tanzania Paper presented during the 13th Biannual Conference for Research on Learning and Instruction in Amsterdam, August 25th - 29th, 2009.

Nihuka, K. A., (2011). Collaborative Course Design to Support Implementation of E-Learning by Instructors. *PhD Thesis University of Twente, Enschede. ISBN 978-90-365-3235-8 DOI 10.3990/1.9789036532358*

Nihuka,K.A & Voogt, J., (2011). E-learning course design in teacher design teams: Experiences in the open university of Tanzania. *International Journal of Learning Technology, Vol.*6, No: 2 pp. 107-124

Nyandara, Z. I., (2012). Challenges and Opportunities of Technology Based Instruction in Open and Distance Learning: A Comparative Study of Tanzania and China. Proceedings and report of the 5th UbuntuNet Alliance annual conference, pp. 130-145

Olugbeko, S. O, and Izu, G. O., (2013). The reality and challenges of E-Learning education in Africa: The Nigerian Experience. *International Journal of Humanities and Management Sciences (IJHMS) Vol. 1, No: 3, pp.205 - 209*

Pi-Tzong Jan, Hsi-Peng Lu and Tzu-Chuan Chou, (2012). The adoption of E-learning: An institutional theory perspective. TOJET: The Turkish Online Journal of Educational Technology. Volume 11 Issue 3, pp. 326-343

Qureshi, I. A, Ilyas Khola, Robina Yasmin, and Michael Whitty, (2012). Challenges of implementing e-learning in a Pakistani university. *Knowledge Management & E-Learning: An International Journal, Vol.4, No.3. pp. 310-324*

Rivers, J. K., Rivers, P. A., Hazell, V., (2015). Africa and Technology in Higher Education: Trends, Challenges, and Promise. *International Journal for Innovation Education and Research, Vol:-3 No-5, pp. 14-31*

Sanga, C., Magesa, M. M., Chingonikaya, E. & Kayunze, K. A., (2013). Can e-learning promote participation of female students in STEM disciplines in higher learning institutions of Tanzania?. *International Journal of Education and Development using Information and Communication Technology (IJEDICT),* vol.9, no.3, pp. 86-102.

Sangrà, A., Vlachopoulos, D. & Cabrera, N. (2012). Building an Inclusive Definition of E-Learning: An Approach to the Conceptual Framework. *International Review of Research in Open and Distance Learning*, vol. 13, no. 2, pp. 145-159.

Sangrà, A., Vlachopoulos, D., Cabrera, N. & Bravo, S. (2011). Towards an inclusive definition of e-learning Barcelona: eLearn Center. UOC

Sife, A., Lwoga, E. & Sanga, C., (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development using Information and Communication Technology (IJEDICT),* vol. 3, no.2, pp. 57-67.

Ssekakubo, G., Suleman, H. & Marsden, G., (2011). Issues of Adoption : Have E-Learning Management Systems Fulfilled their Potential in Developing Countries ? In *Proceedings of the South African Institute of Computer Scientists and Information Technologists Conference on Knowledge, Innovation and Leadership in a Diverse, Multidisciplinary Environment*. Cape Town, South Africa.: ACM New York, NY, USA ©2011, pp. 231–238.

Tarus, J. K., and Gichoya, D., (2015). E-learning in Kenya Universities: Preconditions for Successful Implementation. The Electronic Journal of Information Systems in Developing Countries (EJISDC), Vol.66, No: 4, pp. 1-14

Tarus, J. K., Gichoya, D., and Muumbo, A., (2015). Challenges of Implementing E-Learning in Kenya: A Case of Kenyan Public Universities. International Review of Research in Open and Distributed Learning, Vol. 16, No: 1, pp. 120 - 141

Tarus, J., (2011). Adoption of e-learning to support teaching and learning in Moi University. *Thesis of Master of Philosophy (Information Technology), Moi University.*

Touray, A., Salminen, A. and Mursu, A., (2013). ICT Barriers and Critical Success Factors in Developing Countries. *The Electronic Journal of Information Systems in Developing Countries*, Vol. 56, No: 7, pp. 1-17.

UNESCO, (2016). http://www.unesco.org/new/en/unesco/themes/icts/e-learning/ accessed on 30th September 2016

Unwin, T., Kleessen, B., Hollow, D., Williams, J. B., Oloo, L. M., Alwala, J., Mutimucuio, I., Eduardo, F. & Muianga, X. (2010). Digital learning management systems in Africa: myths and realities. *Open Learning: The Journal of Open, Distance and e-Learning*, vol. 25, no. 1, pp. 05-23.

URT,(2010). Education Sector Development Programme. Available at http://planipolis.iiep.unesco.org/upload/Tanzania%20UR/Tanzania_SEDP_2010_2015.pdf accessed on (03/10/2016)