



Technology Integration Imbalances/Challenges in Higher Institutions of Learning: A Case of Private and Public Universities in East African Region

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Abstract: *Technology integration remains a challenge in private and public universities across East Africa, impacting most on the performance of learners and lecturers in universities. The purpose of the paper was to examine the technology integration imbalances/challenges in institutions of higher learning in East Africa. The paper focused at; East African universities with online publications on technology integration, challenges to technology integration among universities and technology integration challenges common in universities. The paper employed both cross-sectional and correlational survey. The study targeted 50 private and public universities in East Africa. However, based on the literature reviewed, only 20 universities had online publications on technology integration. SPSS was used to analyze collected data for generating inferential statistics while the Content value analysis was used to generate frequencies. Results indicated that, incompetences, inadequate professional development, inadequate resources, low attitude of students and lecturers, resistance of lecturers, inadequate funding and inadequate technological infrastructure were major challenges targeted universities. Results indicated that there was no significant difference ($p>0.05$) in technology integration between private and public universities in East Africa. The paper concluded by developing a FITI model for universities and recommends universities to invest in infrastructure and training as the key drivers to technology integration.*

Keywords: *FITI model, Funding, Infrastructure, Integration, Training*

1. Introduction

Information and Communication Technology (ICT) has resulted into virtual advancement in global education (Aguete, 2014). In university education, ICTs are used to develop course material; deliver and share content; communication between learners, tutors/instructors/lecturers and global world; creation and delivery of presentations and lectures; academic researches; administrative support as well as students' enrolment (Mondal & Mete, 2012). Based on these situations and scenarios, many institutions have procured various ICT technologies, including Learning Management Systems (LMS), conferencing and multimedia facilities, which facilitate face-to-face and distance teaching-learning process (Mtebe and Raisamo, 2014).

Interestingly, in Tanzania, a Tanzania Education Network (TERNET) was created to provide an

electronic network which connects Higher Education Institutions (HEIs) and research centres (Swartz and Wachira, 2010). However, Lwoga (2012) reports that, cost of acquiring, managing and maintaining ICT infrastructure and high cost of bandwidth and inadequate of competent technical staff as challenges. He adds that, 80% of the staff had no Web 2.0 training, though Web 2.0 tools are key for the teaching-learning process. In terms of integration, ICT has changed education for example, competencies have supported countries in developing knowledge based industries, hence earning significant rewards (Ezziane, 2007; Nawaz & Kundi, 2010).

Therefore, the purpose of the paper was to examine the technology integration imbalances/challenges in institutions of higher learning and design a technological implementation framework in both private and public universities in the East African region.

1.1. Research questions

The following research questions guided this study:

1. Which East African universities were identified to have carried out studies on technology integration by the time of study?
2. What are the challenges to the technological integration among Universities in East Africa?
3. Which technology integration challenges are common among Universities in East Africa?

1.2. Hypothesis

The study tested the this hypothesis:

Ho: There is no significant relationship in technological integration between private and public Universities in East Africa.

2. Literature Review

2.1. East African Universities which had carried out studies on technology integration

UNESCO (2014) asserts that Universities in East Africa are increasingly embracing ICT in teaching and learning and comparing favorably with international universities in the use of technology.

Kenyan universities edged out their East African counterparts to emerge top in a survey focused on the adoption of information and communication technology in higher education. Private universities outperformed public institutions and Uganda's Makerere University was placed first. Kenyan universities, the survey showed, are leading the pack in the use and accessibility of ICT in education in East Africa, while Burundi is lagging behind (Lwoga, 2012).

He further asserts that, Uganda came in second, Tanzania third and Rwanda fourth. The use of websites, subscribing to academic journals, use of intranet, social media and other e-learning tools have revolutionized the academic sector in East Africa. In terms of the number of universities appearing in the top 100 in the CPS rankings, Uganda had the highest number, which researchers attributed to the fact that Uganda has more fully fledged universities than any other East African country. Government statistics show that Uganda has 45 universities, with the majority being full universities, while most of Kenya's 67 institutions are constituent university colleges.

Tanzania has 23 higher education institutions, Rwanda 24 and Burundi five .Kenyan universities, however, took six out of the top 10 positions: Strathmore University, Multimedia University, African Virtual University, University of Nairobi, Mount Kenya University and Kenyatta University. Uganda's Makerere University was number one in the ranking, followed by Strathmore University. Rwanda's College

of Business and Economics topped the list of Rwanda's institutions while the University of Dar es Salaam was Tanzania's peak institution.

2.2. Challenges to the technological integration among Universities in East Africa

Some of the challenges for integration of technology in universities are: avoiding technology for technology's sake, creating a vision, money, professional development among others as discussed below:

Resistance to Change

Resistance to change amongst instructors in integrating technology to enhance teaching and learning remains a challenge (Kisanga and Ireson, 2015). Despite the continued acceptance and use of various technologies for the teaching-learning process at UDSM, some academics are still reluctant to use them. Tedre, Ngumbuke and Kempainen (2010) affirm that, many academics in universities in Tanzania did not use these technologies in their own studies, and hence they have no previous knowledge on how those technologies could or should be used. Thus, this makes them feel painful when forced to abandon the traditional instructor-led learning style (Andersson and Grönlund, 2009). Furthermore, Raphael and Mtebe (2016) inform that, almost half instructors interviewed from OUT and 60% from University of Dar Es Salama did not have skills to manage workloads especially of their campus based courses, thus viewing blended courses as an added burden.

Infrastructure

A study from Nigeria by Adeosun (2010) showed that the lack of inadequate ICT resources and weak infrastructure inhibit the implementation of ICT in education. Thus, advanced forms of ICT assist the instruction process that is, computers and internet assisted instructions require proper infrastructure such as substantial computers and Internet resources. It was further revealed by Balasubramanian *et al.* (2009) that computers available to educational institutions served both instructional and administrative purposes. Additionally, in Pakistan, the integration of ICT in education has been challenged by inadequate infrastructure, especially in in remote areas (UNESCO, 2014).

Availability of Resources

Sife *et al.* (2007) stated that in Tanzania's higher learning institutions, lecturers and students have access to internet, computers, mobile technology like mobile phones, audio CDs and DVDs. However that access is very minimal. It was further revealed that, Open University of Tanzania (Nihuka and Voogt, 2011) due to shortage of computers, staff share one computer in an office with 4-5 officemates, and for students the situation is worse because the number of computers is insufficient compared to the number of students.

Inadequate access needed infrastructure was as a result of insufficient funds (Ololube *et al.*, 2007).

Funding

Financial resources forms a key factor to the successful technology enhanced learning at any institutions (Sife, Lwoga and Sanga, 2007; Andersson and Grönlund, 2009). Further, Andersson & Grönlund (2009) claimed that, a number of factors inhibit univesirt staff from using ICT in teaching-learning process. Results from their study further affirm that, cost and capital (the budget for using ICT); educational (access to technology); technical and structural (the availability of sufficient facilities); and skills (knowledge about using ICT in teaching) hindered ICT integration in the teaching and learning process.

Competence

According to WST model of technology integration, there are three key factors for successful integration of technology which are will (attitude), skill (technology proficiency) and tool (access to technology tools). For the three factors, attitude was recognized as key, though skills appear to be the strongest (Knezek, Christensen & Fluke, 2003).

Attitude

Hue and Abjalil's article on Attitudes towards ICT Integration into teaching-learning and usage amongst University Lecturers in Vietnam, lecturers' attitudes towards ICT integration into the curriculum play a key role in the teaching and learning process, especially when it comes to positive attitudes. thus, ICT integration was used under the right conditions, including suitable sources, training methods, and means of support, it can have a useful effect on teaching and learning (Knezek, Christensen, & Fluke, 2003). Attitudes affect educators' behaviors and have a considerable effect on reflecting and implementing change as well as on openness to new experiences. Based on previous researches, Kzenek and Christensen (2008) stated that attitudes are significant factors in the integration and diffusion of ICT into the leaching and learnin process.

Professional development

Chan & Lee (2007) note that investment in the educational technologies has gained increased trend all over the world, the use of this technological facilities in learning environments also gained importance in Turkey so the lecturers are supposed to perceive the use of technology as a natural part of their profession in order to be able to conjoin these investments for enhancing the teaching-learning amongst the students. Thus, lecturers tend to use the technology almost not at all, however, they consider the technology as an instrument which necessities to be taught.

2.3. Technology integration common challenges amongst Universities in East Africa

Technology for education has come across numerous online platforms offering courses, platforms from which learning takes place (Raphael & Mtebe, 2016). This implies that educational institutions are latecomers if technology has to be introduced in the most important room of a student's life 'the lecture rooms'. Thus, lecturers face a lot of challenges while integrating technology in lecture rooms. However, lecturers embrace the use of technology in teaching-learning process, though used ineffectively. These are some of the major challenges that are obstructing the integration of technology in the universities: Resistance to change, inadequate of hardware and guidance to use them, students will know more than me attitude, Fear of technology and limited training opportunities and rigid teaching models

The more the technology improves, the better, hencse increasing discussions on innovative approaches it would be used (Sife, Lwoga & Sanga, 2007). While it is obviously important to consider the technical aspects of any new technology, there is a critical need for more discussion related to the social and organizational aspects of technology in higher education. Technology Integration in Higher Education: Social and Organizational Aspects provide a sound overview of the ways technology influences the human and organizational aspects of higher education (Office of Education Technology, 2017). Aimed at researchers and professionals working in higher education, this text explores how technology is changing the relationship between faculty and students, higher education experience, and the role of colleges and universities within society as a whole. Whereas technology and higher learning education are each fascinating and important topics in their own, technology has changed the approaches in which universities function and organize themselves, how students learn and earn degrees, how faculty teach and conduct research, how institutional knowledge is collected, organized, and disseminated, and how universities, governments, and corporations interact. Interestingly, higher education has driven technological advancement in identifying and creating new markets, producing technology innovators and developing new models for conceptualizing and implementing innovative technologies.

3. Methodology

The paper employed documentary, cross-sectional survey and correlational survey designs using both qualitative and quantitative data collection approaches. The study targeted 50 private and public universities in East Africa. However, based on the literature reviewed, only 20 universities from East Africa were found to have their publications on technology integration online, hence the sample size. Individual members were selected though purposive sampling technique from the four (4) countries in the East African region to collect data through documentation and Google scholar tools on imbalances/challenges in technology integration by universities in the East African Region.

This study involved identifying articles of researches dealing with mitigations to implementation of technological integration in universities in East Africa. Inclusion Criteria included: Search Boundaries – Google or any other search engine, Search Frame – 2009 – 2018 (10 years period), Search Terms – university, higher institutions of learning, technology integration, challenges, East Africa, Rwanda, Tanzania, Uganda, Kenya were used. The following were the exclusion Criteria: Article not available, article not scientific, and article not referring to universities, article not referring to technology integration, article not referring to imbalances/challenges, article not referring to East African Universities.

Each researcher used data extraction sheet independently to analyze all articles identified. The data extraction sheets were implemented in Microsoft Excel to allow a high degree of transparency and to minimize input data errors. Each data extraction sheet had bibliographic data, research aim, method, country of the author, university, results, challenges that influence technology integration.

Data collected was analyzed using SPSS to run regression and correlations for establishing relationships between variables while the Content value analysis was used to generate frequencies and

percentages from the theoretical statements. Thus, from the findings, the researchers developed a Technology FITI Model.

4. Results and Discussions

This section presents data collected from the study, analysis and interpretation so as to make deductions related to the research questions. Results from the data were discussed in order of the way they are listed. The findings are compared to those of other results done previously and possible reasons of the findings provided.

4.1. Which East African universities were identified to have carried out studies on technology integration by the time of study?

This study involved identifying articles of researches dealing with mitigations to technology integration in universities in East Africa. A total of 49 studies were identified whose distribution is indicated in Table 1 below:

Table 1: Distribution of Identified Studies on Technology Integration in East Africa Universities

	Kenya	Uganda	Tanzania	Rwanda	Non Specific	Total
Number of studies done	15	9	9	5	11	49
%	30.61	18.37	18.37	10.20	22.45	100

Source: Secondary Data, 2019

Out of the 49 studies, 38 were specific to individual countries while 11 studies involved more than one country in East Africa. In Rwanda, 5 studies were identified making the lowest number. This indicates that 10.20% of the identified studies were specifically carried out in universities located in Rwanda. Table 1 shows that Tanzania and Kenya produced a tie of 9 identified research articles each making 18.37% of the identified articles related to integration of technology in universities. Eleven of the identified articles, 22.45%, were from universities across East Africa which included some or all of the countries involved in this study and were classified as non-specific. One of the non-specific articles included Burundi which is also in the East Africa region. The remaining fifteen articles, constituting a 30.61 %, were from universities in Kenya.

Results further reveal that, four countries in East Africa had their universities carry out research and documented in relation to technology integration. Majority of the articles identified were from Kenya, followed by Uganda and Tanzania. The lowest number of articles was from Rwanda and a good number of the

articles were from studies that involved more than one country in the East African region.

4.2. What are the challenges to technology integration in universities in East Africa?

To deal with this question, data obtained from the articles identified was developed into themes. The themes were used to constitute seven variables namely; incompetencies, professional development, availability of resources, attitude, resistance to change, funding and inadequate infrastructure. Frequencies of each of the variable were tabulated as shown in Table 2. The information was then fed into SPSS and the data used to generate deductions to address the second research question.

From the information condensed in Fig. 1, challenges to technology integration are evident in both private and public universities. The data from SPSS revealed that out of the 38 studies used for analysis, those that are specific to either public or private universities, 8 were from private universities making 21.1% and 30 making 78.9% from public universities.

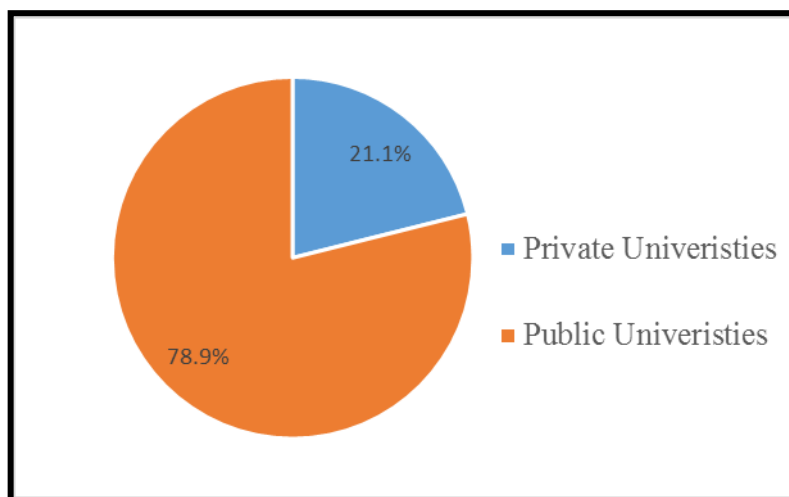


Fig 1: Proportions of Universities as per the articles reviewed

Source: Secondary Data, 2019

The general challenges to technology integration in universities were;

1. Incompetencies in the field of Information and technology
2. Inadequate professional development
3. Inadequate resources in technology
4. Low attitude of students and lecturers towards use of technology
5. Resistance of lecturers to use of technology
6. Inadequate funding of technological projects and materials

7. Inadequate technological infrastructure

4.3. Which technology integration challenges are common among universities in East Africa?

To determine the common challenges to technology integration in East Africa, the data fed in the SPSS was analyzed to obtain the frequencies of each variable. The statistics were displayed as presented in Table 2 below:

Table 2: Common challenges to technology integration identified in the articles reviewed

Rank	Challenge	Frequency (38)	Percentage
1	Incompetencies	27	71.1
2	Inadequate infrastructure	26	68.4
3	Inadequate of professional adequate development	20	52.6
4	Unavailability of resources	20	52.6
5	Insufficient funding	16	42.1
6	Low attitude	13	34.2
7	Resistance to change	10	26.3

Source: Secondary Data, 2019

Results in Table 2 above show the ranking of the challenges from the most common to the least common as per the research articles reviewed. Out of the 38 research articles used for analysis, 27 revealed inadequate competencies as a challenge to technology integration in universities of East Africa. This makes 71.1% of the articles reflected on. Only in 11 of the studies considered was incompetence not evident. This finding concurs with that of Mtebe & Raisamo (2014) whose study ranked competence problems as the greatest among the three challenges identified. In the study, 115 out of 300 respondents (38%) agreed that competence was a challenge to implementation of technology, specific to E-learning, systems in universities.

Ranking second in Table 2 was the challenge of inadequate infrastructure. A proportion of 68.4% of all the articles used identified inadequate infrastructure as a challenge to technology integration in universities of East Africa. With inadequate infrastructure, access to

technology systems is obvious, in that, not all the willing and potential users are able to use the systems. In congruence to this finding, the study by Mayoka & Kyeyune (2012) places access challenges at the second position, such that, 35% of the respondents, that is 105 of the 300 in the sample, agreed that they face access-related problems while implementing technology in universities.

Inadequate professional development and unavailability of sufficient resources tied at the fourth position in frequency of identification as a challenge in technology integration in universities. Each was highlighted in 20 of the 38 identified articles, making 52.6% of the articles used.

Among the seven challenges identified in the articles the challenge of low attitude was ranked second last. 13 out of the 38 studies identified low attitude as a hindrance to technology integration in universities of East Africa. This makes 34.2% of the items analyze from the data. This finding suggests that many

respondents used in the studies had positive attitudes towards implementing technology and the mitigating factors control the process of putting technology to use. A similar finding was established in a study which investigated the attitude of lecturers towards technological implementation in higher institutions of education. The study's results unveiled lecturers' high attitudes towards technology integration specific to E-learning in universities (Mayoka & Kyeyune, 2012)). This is a positive observation that denotes lecturers' willingness to embrace technology in the universities if the challenges could be done away with.

After low attitude resistance to technology integration, the fact that 'resistance to change' ranked lowest is also an indication of people's willingness to welcome technology integration in Universities in East Africa. This challenge occurred only in 10 of the 38 articles making 26.3% of all the articles used in the analysis. The fact that in 73.7 % of the articles resistance to change was unidentified means that respondents used in the researches were positive about technology integration in the institutions of higher learning. This does not absolutely disagree with Raphael & Mtebe (2016) who asserted that resistance to technology integration in lecture room is evident in online teacher forums. Though they explained the possible reason for as that lecturers feel comfortable with their current

methods of lesson delivery, the authors did not rank the identified challenges from the most common to the least common (Raphael & Mtebe 2016).

The most common challenges to technology integration was identified to be inadequate competence, inadequate infrastructure, inadequate professional development, unavailability of resources, insufficient funding, low attitude and resistance to change in that order. However, a few challenges were unique to some articles including; limited time to implement technology (evident in two articles), and inadequate of the institution's administration (evident in one article).

4.4. Hypothesis testing

Ho: Is there a no significant relationship in challenges to technology integration between private and public universities in East Africa?

After quantifying the data analysis was run to determine whether there was any significant difference between private and public universities in terms of the challenges to implementation of technology. The results obtained were portrayed in Table 3 below:

**Table 3: Results of Independent samples t-test
Independent Samples Test**

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Inadequate of Competence	9.394	.004	1.144	36	.260	.20833	.18212
Inadequate of Professional Development	3.781	.060	1.365	14.696	.193	.20833	.15260
			-1.789	36	.082	-.35000	.19561
Availability of Resources	.458	.503	-1.869	11.724	.087	-.35000	.18725
			-.951	36	.348	-.19167	.20161
Low Attitude	1.444	.237	-.936	10.821	.370	-.19167	.20482
			1.047	36	.302	.20000	.19106
Resistance to Change	.036	.851	.965	10.027	.357	.20000	.20726
			-.093	36	.927	-.01667	.18000
Inadequate Funding	.458	.503	-0.091	10.803	.929	-.01667	.18311
			-.289	36	.774	-.05833	.20161
Inadequate Infrastructure	2.110	.155	-.285	10.821	.781	-.05833	.20482
			-1.254	36	.218	-.23333	.18601
			-1.132	9.809	.284	-.23333	.20605

**. Correlation is significant at the 0.05 level (2-tailed).*

The descriptive statistics of the independent samples t-test performed shows that all the statements attained Sig-values (2-tailed) greater than 0.05, that is $p > 0.05$. This leads to acceptance of the null hypothesis that 'There is no significant relationship in technological integration between private and public universities in East Africa'. The finding implies that the challenges to technology integration as identified in public universities are similar to those identified in private universities.

4.5. The FITI model

FITI model was developed as per the major challenges affecting the integration of ICT in East African Universities, which include; insufficient funding, inadequate infrastructure and training of human resource. Therefore, the challenges have been deduced to funding, infrastructure, training and institution support as presented in Fig. 2 below:

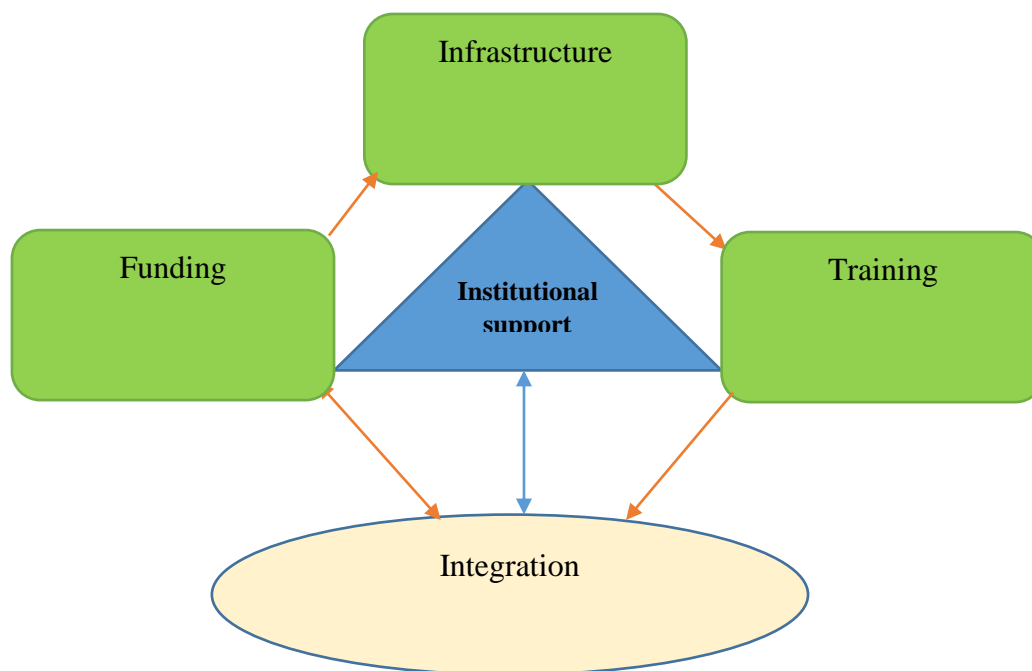


Fig. 2: Technology Integration FITI Model

Source: Developed by the Authors, 2019

Description of the FITI Model

This paper established the following challenges as barriers to technology integration; incompetent staff, inadequate infrastructure, limited professional development, unavailability of resources, insufficient funding, low attitude and resistance to change. These challenges were deduced into three major categories: insufficient funding, inadequate infrastructure and training of human Resource. The stated challenges were seen as potential opportunities for successful technology integration. It is out of this conclusion that, a FITI Model for technology integration in higher institutions of learning was developed to address the observed challenges.

Institutional support plays a vital role in technical integration in universities across East Africa. This institutional support can be evidenced in areas of funding, infrastructural development and training of the users and learners using the ICT. This is also emphasized by Mayoka & Kyeyune (2012) who assert that university top management should support e-learning projects through resource mobilization, monitoring and establishment of internal mechanisms that foster e-learning usage. Further, universities should have an enabling institutional strategy, which integrates capabilities and costs needed to fund the IT and institutional leaders for betterment of their capacities in using ICT infrastructure in the day-day of teaching-learning process (Grajek, 2018). On that note, institutions need to help their support staff and managers with appropriate funding to support the purchase of ICT infrastructure as well training in the areas of IT usage and integration. Technology integration ensures powerful transformation of learning and education managers need to support the facilitators

in embracing technology integration (OET, 2017). This implies that, such funding helps both ICT users, including lecturers and learners to multiples experiences and knowledge in the use and integration of technologies in the teaching and learning process in universities (Grajek, 2018).

Thus, for technology integration to be successful, universities have to play a role in training and building capacities of their staff to be influential in using ICT infrastructure among the learners (Grajek, 2018). This implies that, all these would be in place when universities provide sufficient funding through institutional support mechanisms for the purchase of the ICT infrastructure, and undertake training among the users in the universities.

It is revealed that, universities which have efficiently supported their staff through funding to further acquire knowledge and skills in using ICT systems have had unclaimed performance. This is an important element in technological integration as supported by Rogers and Shoemaker cited in Mayoka & Kyeyune (2012, p.2), as they claim that knowledge is the process of enlightening and provision of relevant information about the new technology.

In addition, the acquisition of ICT infrastructure by universities have given their staff and learners a firm ground for quality outcomes (Elmes, 2017). These infrastructure should have high speed connectivity and devices that are available to lecturers and students whenever they need them (OET, 2017). Elmes further notes that online or blended offering with personalized and adaptive learning strategies encourages more productivity and performance of the staff in any

university. This implies that those universities which have supported infrastructure development and training in competence based education, have been able to have their online clientele numbers increase as well as adoption of the technologies for ease of facilities. The common ICT infrastructure that institutions must invest include; quality digital contents and resources, high speed Wifi, data privacy and security, high-quality low-cost devices, home internet access, digital citizenship and responsible use, and high-speed connectivity (OET, 2017, p.70). Therefore, integration in teaching-learning process, efficient leadership are paramount in supporting lecturer-student use in teaching, learning and assessment (OET, 2017). Research shows that, institutions have gone ahead to seek for funding in form of grants or loans in support of their ICT infrastructure and capacity building of the users as a strategy to enhance institutional growth and development through online teaching programs. Additionally, institutions in such areas have the ability to equip their staff with the best teaching technology-based tools as well as engaging in online classes (Elmes, 2017).

Therefore, integrating ICT in universities in East Africa is key and many virtual universities have opened up their doors for the increased need for online studies to learners and instructors, hence a reduction in the education cost and accessibility (Elmes, 2017). Nevertheless, to realize fully the benefits of technology in our education system and provide authentic learning experiences, educators need to use technology effectively in their practice (OET, 2017). This means that, technology is an important tool in accessing and achieving education quality in universities (Elmes, 2017), and students are able to provide feedback on online technologies for better assessment of the learning-teaching process (IPS, 2016).

It is a proven fact that ICT does not improve teaching-learning process except when the user has the ability to influence its adoption to the learners (IPS, 2016) and with the support from the management of the university. IPS further notes that, there is always a problem on acquisition of essential infrastructure from administrators who are the financial controllers and the

choice makers of any organization. This further stipulates that universities find it hard to equip the students in their fields of study and equip them with competencies to leverage technology effectively in their operational environment (IPS, 2016).

Interestingly, in ensuring technological integration in universities, educators, policymakers, administrators, and teacher preparation and professional development programs include infrastructural tools and resources into their teaching and learning practices (OET, 2017). This will be done in collaboration with various stakeholders to eliminate inefficiencies within teaching-learning process to reach beyond the walls of learning and external learning environments.

5. Conclusions and Recommendations

This paper concludes that, universities in East Africa had integrated technology though to a smaller extent. The paper identified a number of challenges, for example, incompetencies in the field of information and technology, inadequate professional development, inadequate resources in technology, low attitude of students and lecturers towards use of technology, resistance of lecturers to use of technology, inadequate funding of technological projects and materials, inadequate technological infrastructure. These challenges were seen as hindrance to technology integration. Further, there was no significant relationship in technological integration between private and public universities in East Africa. The findings implied that the challenges in technology integration identified in public universities are similar to those identified in private universities. Out of the challenges identified in this paper, a technology FITI model was developed highlighting four components as key in technology integration in higher institutions of learning including; funding, infrastructure, training and Integration.

The paper recommends institutions to invest heavily in infrastructure and training, which are major drivers in technology integration and implementation.

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