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Instructors' Perspectives, Motivational Factors and Competence in the use of an E-Learning System in a Tanzanian University

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ABSTRACT

The adoption, deployment, and implementation of e-learning systems in higher learning institutions in Tanzania receive notable recognition as innovative, efficient and effective teaching and learning platforms. This study investigated instructors' perspectives, motivational factors, and competence in the use of an e-learning system at Mzumbe University in Tanzania. A quantitative research design was used with a survey questionnaire to collect data from forty-two instructors at the Mzumbe University. The results indicate that the instructors had positive perspectives on the use of the e-learning system. The results further show that the Mzumbe University e-learning system is mainly used for the provision of teaching notes, assessments and feedback, course outlines, and for grading students' work online. The findings also show various instructors' motives for their engagement in e-learning: beliefs in the power of e-learning, personal interests, nature of the course, and technological convenience in using e-learning systems to enhance students' learning. Moreover, findings reveal that instructors had average competence in designing and implementing e-based teaching and learning activities. The study enlightens e-learning champions, e-learning instructors, and higher learning institutions aspiring to implement e-learning systems, as well as provides guidelines related to the use of e-learning systems. The study findings will be useful for those interested in improving the use of the e-learning system in higher learning institutions in Tanzania.

Keywords*: e-learning, motivational factors, competence, ICT/ICTs, e-learning implementation*

INTRODUCTION

The use of innovative learning technologies, instructional delivery modes, learning approaches and instructional tools, such as e-learning, blended learning, microlearning and tele-presence in various higher learning institutions around the world has become essential for the provision of quality education in many countries in Africa today**.** In the year 2011, the growth of self-paced e-learning delivery modes or approaches in Africa was 15.2% (Adkins, 2013). According to Aginam (2012), Microsoft and the British Council had to set up eighty digital hubs (that is, Badiliko Digital Hubs in Tanzania) that would be connected to the Internet and have digital content in various African countries including Tanzania, Kenya, Uganda, Ethiopia, Ghana, and Nigeria, as a means of improving education provision in these countries. For instance, blended learning, which has been defined as a purposeful integration of face to face (F2F) instruction and Internet-based learning, was being viewed as the new norm. Owing to higher Internet penetration, the use of smartphones, tablets and other connected devices has made e-learning an integral part of many mainstream universities. In Africa and beyond, more and more higher learning institutions have embarked upon the use of innovative teaching and learning technologies, such as mobile learning, digital marketing, and digital learning hubs. In the context of this study, e-learning is a working tool for the accomplishment of all matters about the teaching-learning process, such as

assessments and evaluation and student records. The e-learning system has been used to accomplish the following, among others: monitoring teaching and learning materials, conducting online discussion forums, setting assignments, tests, and examinations. The system monitors these activities.

In Tanzania, currently, a few higher educational institutions, mostly private, have incorporated the use of Information Communication Technologies (ICTs) into education delivery (United Republic of Tanzania [URT], 2016). Five of these higher learning institutions include the University of Dar Es Salaam, Mzumbe University (MU), The Institute of Accountancy, Arusha, The Eastern and Southern African Management Institute – Arusha and Kilimanjaro Christian Medical University College. These institutions use Learning Management Systems (LMSs) such as Moodle, Edmodo, Schoology, CANVAS and Blackboard for supporting teaching and learning and for maintaining efficiency and effectiveness. The Tanzanian government, through the Ministry of Education and Vocational Training and the Ministry of Works, Transport and Communication, recognize the potential of Information and Communication Technology (ICT) to act as a tool for improving education delivery, outcomes, and impact, as evidenced in the national plans, policies, and strategies (Swart & Wachira, 2010; URT, 2016).

Although universities in Tanzania do not have adequate ICT facilities, devices, and resources to produce electronic teaching and learning resources, the Tanzania Commission for Science and Technology, 2016, through its Research Priorities for Tanzania - 2015-2020, recognises and emphasizes research on the use of innovative teaching and learning strategies, such as appropriate e-learning platforms, in improving access, retention and provision of quality education (URT, 2016). In response to this, various educational institutions in Tanzania, including MU, have adopted e-learning systems; and they have started to conduct research on its usability, accessibility and potential in teaching and learning. In 2009, MU adopted Moodle as its Learning Management System (LMS). The usage has been supported by building staff capacity in the area and by using funds both from internal sources and collaborative partner projects. The choice of Moodle was attributed to several factors because it is an open-source platform, and its design type makes it very usable. However, the mandate of the MU, as stipulated in the MU Charter of 2007, and its subsequent fourth Corporate Strategic Plan 2017-2022, focuses on training, research, publications, and public service cum consultancy (Mzumbe University, 2016, 2017b, 2018).

MU offers several degree programmes ranging from certificate, diploma, bachelor, master and doctoral degrees. Although traditional F2F instruction partially dominates teaching and learning at MU, the use of digital instructional technologies has been in place since 2009, when the e-learning system was introduced (Mzumbe University, 2016; Machumu & Zhu, 2017). Together with traditional F2F, MU has adopted the use of mobile learning (cf. MfunziAPP), an e-learning system (cf., MU e-learning system), student records and management software such as the Academic Registration Information System and the MU Scholarly Digital Repository and Student Information System (Machumu, Ghasia & Musabila, 2018; MU, 2018).

Moreover, due to the ecology of the education of the MU itself, a combination of these initiatives urges for the deployment, adoption, and implementation of a blended learning approach. In fact, the ecological approach to teaching and learning at the MU influences interactions between teachers, students and appropriate teaching and learning environments for the successful provision of quality higher education. In conjunction with that, learning technologies (mobile learning) and instructional approaches (blended learning) and tools (e-learning) have been institutionalised and adopted at MU. However, knowing teachers' perspectives, motivational factors, and competencies in the use of e-learning, could better help them to engage actively and effectively with the platform and hence enhance meaningful student learning. Considering the above, the present study investigated teachers' perspectives, motivational factors and

competencies in e-learning utilization as an innovative approach to teaching and learning at MU, Tanzania.

SITUATING THE PRESENT STUDY

Research studies have shown positive impacts in the use of e-learning both in developed and developing countries. Such impact includes student learning outcomes, cost effectiveness, increasing learner engagement, motivation and enabling competency-based learning (Horn & Staker, 2014; Machumu, 2021). This study is situated at a University in a developing country. As detailed above, Mzumbe University was selected for the study. Before the execution of the study, an internal situational analysis was conducted to assess the university's readiness and capabilities in the use of the e-learning system. Technical, pedagogical, and administrative aspects were considered as part of the situational analysis, (Ghasia, Machumu, Zhu, & Koen, 2020). The following issues which emerged provided a green light to enable the researchers to proceed with the study:

a) *E-learning Usage:* The use of e-learning systems at Mzumbe University dates back to 2009. The usage has been supported by building staff capacity in the area, using funds both from internal sources and collaborative projects. At this time over 40% of academic staff have been trained in the area and about 30% of the courses have been uploaded and run using a combination of F2F instruction and the e-learning platform.
b) *Local Area Network (LAN):* MU has structured a fiber-backed network at the main campus, one server room and a data center at the university's main campus, and skilled personnel to manage the infrastructure and Internet connectivity at all university campuses
c) *Wireless LAN:* The University has wireless network coverage in the key office buildings at all campuses and Mzumbe University Policy (MUISIP) on a wireless network is available. There has been a structured network in place since 2003. All university offices are connected. However, with the extension of the university and students' distribution, the current network does not have enough connection ports for all the instructors. Therefore, the university has extended the network by installing wireless LAN.
d) *Servers (HW/SW):* The main Campus has eight (8) servers which are used to run various services such as students' records and students' registration. Dar es Salaam Campus College and Mbeya Campus College have one server each.
e) *Available Technology in support of E-learning:* In this aspect MU has the Learning Management System (LMS) platform (MOODLE) distributed to all its campuses as follows: https://elearning.mzumbe.ac.tz/ for the main campus, https://mccelearning.mzumbe.ac.tz/ for MCC and https://dccelearning.mzumbe.ac.tz for DCC. The Moodle e-learning platform can support instructors and students offline. Additionally, the following systems are also available: The Academic Records Information systems (ARIS) - https://aris.mzumbe.ac.tz; Institutional Repository - https://scholar.mzumbe.ac.tz; and the Online Admission System - https://admission.mzumbe.ac.tz (MU Facts and Figures 2018/2019).
f) *E-learning Human Resources:* Findings indicate that MU has five (5) PhD researchers specializing in learning technology (that is, online learning, blended learning, mobile learning, computer and education) who have been used for capacity building within and outside the university. There are six (6) system administrators who support the provision of e-learning services and, also, it was found that there are special units with a coordinator designated for teaching skills and distance learning. They are responsible for coordinating e-learning activities at the University and supportive policies and an e-learning agenda in the strategic plan.

In conjunction with the above at MU, there is a dearth of empirical studies investigating teachers' perspectives, motivational factors and competence in e-learning system utilization. Therefore, the claim for e-learning having a transformative potential in the teaching and learning process needs to be examined and more evidence is warranted from the teachers' perspectives, their motivation factors, and competencies in the use of the e-learning platform.

RESEARCH OBJECTIVES AND QUESTIONS

This study aims to investigate teachers' perspectives, motivational factors, and competence in the e-learning system utilization at Mzumbe University. The study was set to address the following research questions:

i. What are the instructors' perspectives on the use of e-learning at Mzumbe University?

ii. What are the instructors' motives behind the e-learning utilization at Mzumbe University?

iii. What are the instructors' competencies on the use of the e-learning system at Mzumbe University?

REVIEW OF THE LITERATURE

Instructors' perspectives on the use of e-learning and e-learning status

Understanding instructors' perspectives on the use of e-learning is essential because their views have an impact on how they approach it. This understanding is built on the assumption that the higher the value the instructor or the learner places on a learning activity, the greater the engagement and persistence in learning (Woolf & Quinn, 2009). This means that instructors' views on what and how they teach relate to how they approach their teaching, something that may influence the learning outcomes. Instructors have been known to have various views on how to use ICT tools and what constitutes the use of e-learning in higher learning institutions. For instance, research studies show that, apart from a great investment in ICT, some instructors in developing countries had no necessary skills in computer-assisted instruction and related learning technologies (Bhalla, 2013). Akram, Ather, Tousif and Rasul (2012) recommended that, in Pakistan, at the beginning of computer integration in education, teachers needed more training and awareness about the use of computer-based technology. One year later, Bhalla (2013) supported the idea of computer use in schools by reporting seminal findings which showed that:

> teachers often used computers to update subject knowledge and teaching skills, develop lesson plans, prepare additional instructional material, notify relevant information via the internet, prepare question banks (p.175)

As in Tanzania, for example, some instructors and teachers still consider e-learning as being synonymous with the use of the Internet for uploading or downloading teaching and learning materials and e-resources as well (Almasi, Machumu & Zhu, 2017). Some reports show that they have only some basic skills like digital resource searches, but they do not have the appropriate skills for digital resources quality checks. Studies revealed that two e-learning models (mobile learning and massive open online courses) are ranked best for Tanzania in effectiveness, cost, rural feasibility, scalability, and sustainability (Baker, Bliss, Chung & Reynolds, 2013). However, a critical argument is that the government and Ministry of Education Science and Technology recognize the potential of ICT to act as a tool for improving education delivery, outcomes, and impact, as evidenced through the national plans, policies, and strategies. In various unpublished reports by MU between 2013 and 2018, which address e-learning utilization, it was found that

most of the MU instructors use the e-learning system mainly for uploading teaching materials and posting student assignments. It should be noted that technical competency of instructors is required either for short term or long-term solutions; as such, any e-learning initiative or solution needs some ICT training for instructors to enhance the effectiveness of e-learning utilization.

In the meantime, the University has managed to improve digital infrastructure to facilitate real-world learning and research processes. MU has made several strides regarding ICT infrastructure, facilities, and services, which accelerate implementation of the e-learning system. Related efforts have been made to improve Internet connectivity and bandwidth, as well as capacity building in the basic ICT application to instructors, software evaluation and e-learning support services (Almasi, Machumu & Zhu, 2018). Moreover, the 2015 MU e-learning system utilization report shows that instructors had been using some basic features for uploading learning materials, engaging students in online discussion, posting assessments and feedback (testing, assignments, posting coursework results) and posting group work only (Ghasia et al., 2020). The given reason for partial utilization of e-learning among instructors is a lack of knowledge in mastering other technology features in the Moodle platform.

Interestingly, on the part of students, several students have registered for a considerable number of subjects via the system. As such, it implies that students are ready to use the system. However, they should be assisted, influenced, motivated, and encouraged by their instructors and university ICT support services experts. The only obstacle is on the side of their instructors who are not using the e-learning system (Mzumbe University, 2015).

Instructors' motivational factors on the use of e-learning

Motivation is regarded as a relatively stable personal characteristic towards an event, activity, or task (Yukselturk & Bulut, 2007). According to Brophy (2010), motivation is a set of forces that cause people to behave in a particular way and has always been used as a technique to influence the performance of duties within an organization (Machumu & Zhu, 2017). Scholars have found that human beings are either intrinsically or extrinsically motivated or de-motivated to engage in learning (Turner & Patrick, 2008; Kaufmann, Schulze & Veit, 2011; Perumal & Bakar, 2011). Moreover, many other factors regarding one's motives to engage in an activity have been proposed, including psychological needs, physiological drives, reward, intentions, values, self-satisfaction, and pleasure (Bekele, 2010; Perumal & Bakar, 2011). According to Tracy (2014), four basics of motivation should be considered while engaging in e-learning in higher education: the reward structure, the organisational climate, the structure of the work and the leadership style. Likewise, with digital instructional technologies, the way in which the teacher teaches and engages learners in the teaching-learning process is currently changing in tandem with increased e-learning interactions in universities (Vayuvegula, 2015). Studies have revealed that regardless of e-learning challenges, teachers are motivated to use e-learning systems because they are being used to encourage constant interaction, promote the sharing of resources and to provide assessments and appropriate feedback among users across the universities, irrespective of their geographical location (Zhu & Mugenyi, 2015). A study by Becker (1994) maintains that opportunities of remote mentorship, guidance and peer interaction prove to be good motivational factors among teachers.

Instructors' competence in the use of e-learning

There has been a change in the role played by instructors following the integration of ICT and related innovative teaching and learning technologies. These teaching and learning technologies are also known as innovative pedagogies that are used to assist students' learning and teachers' teaching (Mynbayeva, Sadvakassova & Akshalova, 2017). Currently, in the developed world and in some developing countries, it is obvious that teaching and learning via learning technologies is

inexorable. However, for successful teaching and learning with ICT, instructors require specific competencies to fulfill curriculum objectives, achieve the best results and deliver course content to the expectations of the students (Awouters & Jans, 2009), all of which have been referred to as meaningful teaching and learning.

Moreover, both experienced and novice instructors' roles have been changing with the movement of delivery methods from traditional to modern and sophisticated innovative methods. With this understanding, the conventional role of an instructor as the sole provider of knowledge has been challenged and ignored to some extent. As a result, instructors teaching online have been deemed to have constructivist approaches to pedagogy and they look at learning more as a collaborative-constructive process rather than a teaching process. The interaction between the macro and micro level in technology-enhanced teaching and the learning environment should be observed; that is, the role of instructors should merge two broad aspects: education-society relationship and instructor-student relationship to yield a holistic understanding of innovative pedagogy (Bigatel, Ragan, Kennan, May & Redmond, 2012). In that sense, several characteristics have been mentioned about defining instructors' competencies to teach online. Moreover, since the early 21st century, the use of online and distance learning delivery methods have increased in higher education institutions. As such, instructors should possess key skill sets (competence) in such teaching and learning environments.

Studies and anecdotal evidence indicate that teaching and learning in a technology-enhanced environment is complex; as a result, e-learning instructors must possess a broader set of skills and competencies to ensure learner success (Bigatel et al., 2012). Instructors who teach online are viewed as content facilitators, researchers, process facilitators, designers, technologists, advisers, assessors, and administrators (Goodyear et al., 2001). The roles of e-learning instructors ought to be employed if the instructors possess essential knowledge and skills of the e-learning system. Consequently, the term *competence* has been defined as the related self-knowledge, skills and attitude required to accomplish a specific task in a way that meets or exceeds the standard expected. Some scholars (Goodyear et al., 2001; Bekele, 2010) have identified four areas of competence required by an online instructor. These are pedagogical, social, technological, and managerial. Considering the above discussion, the review of the literature would suggest that there are gaps between the bodies of knowledge relating to instructors' perspectives, motivational factors, and competencies in the use of e-learning systems in the context of this study. As a result, this study seeks to fill such gaps. In the following section, methodological approaches to the study have been addressed.

THE METHOD AND CONTEXT OF THE STUDY

The study employed a quantitative research method covering MU's main campus and its two campus colleges (Mbeya Campus College (MCC) and Dar Es Salaam Campus College (DCC)). Descriptive statistics, mostly frequency and percentages, were used for data analyses. Instructors who were engaging in e-learning were randomly selected based on the metadata available on the MU's e-learning system. With prior information regarding the e-learning system's users and non-users, 42 instructors (28 males, 13 females - one instructor did not indicate gender) were selected. The study employed a closed end questionnaire with two significant sections. Section A requested instructors' demographic data and information about instructors' ICT skills (instructors without basic ICT skills were excluded from the study), knowing that they have not been engaging in the MU e-learning system. This approach was used because, for successful utilization of the MU e-learning system, instructors should have at least basic ICT basic skills. Section B consisted of five variables, with forty-two items. The study used coefficient alpha (Cronbach's alpha) tests to measure reliability of the multiple-question Likert scale. The five variables with reliability coefficient were Instructors' perspectives; 3 item questions: teaching and learning activities; 14

item questions (α =.87): motivational factors; 7 item questions (α = 79): instructors' competence; 7 item questions (α = .92) and training areas; five-item questions (α = .91).

Demographic Information

The study involved a total of forty-two instructors from MU: main campus - nineteen instructors (45.2%), MCC - eight instructors (19.1%), and DCC - fifteen instructors (35.7%). Males accounted for 66.7%, and females (31%) of respondents while one instructor did not indicate gender. Regarding the instructors' ages, 40.5% of respondents were between 36-45, 19.1% were between 26-35, while 33.3% were between 46-55, and 7.1% were above 55. Regarding teaching experience, 38.1% of respondents had teaching experience ranging between 6-10 years, 35.7% had experience of 11-15 years, 16.7% had below 5 years' experience, while 9.5% had experience ranging between 16-20 years. Regarding ICT skills, most of the instructors (59.5%) reported that they were "very comfortable", 35.7% were "comfortable" and only two respondents (4.8%) were "not comfortable" using computers. Table 1 provides a summary of instructors' demographic characteristics.

Table 1*: Instructors' demographics*

Instructors' demographics		**Frequency (%)**
Gender	Male	28(66.7)
	Female	13(31)
	No gender identity	1(2.3)
MU Campuses	Main Campus	19(45.2)
	DCC	15(35.7)
	MCC	8(19.1)
Educational level	Bachelor	4(9.5)
	Master	19(45.2)
	Doctorate	19(45.2)
Age	26-35	8(19.1)
	36-45	17(40.5)
	46-55	14(33.3)
	Above 55	3(7.1)
Teaching experience	16-20	4(9.5)
	11-15	15(35.7)
	6-10	16(38.1)
	Below 5	7(16.7)
ICT Skills	Not comfortable using computers	2(4.8)
	Comfortable	15(35.7)
	Very comfortable	25(59.5)

FINDINGS

In conjunction with the research objectives and research questions, this study sought to investigate "Instructors' perspectives, motivational factors and competencies in the use of an e-learning system in a Tanzanian university." To this end, the results are presented below.

Perspectives on the use of e-learning for teaching and learning activities

The study investigated instructors' perspectives on the use of the e-learning system by first assessing whether the instructors were aware of its existence. This information is presented in Table 2 below.

Table 2: *Instructors' perspectives on the use of the e-learning system*

Variables (Perspectives)	**YES (%)**	**NO (%)**	**Frequency of use**		
			Very often	Occasionally	Not very often
Awareness of the presence of the MU e-learning platform.	42(100)	-			
Using a MU e-learning platform (having an account).	36(85.7)	6(14.3)			
Uses of MU e-learning platform for several purposes (active learning, administration, communication) - and for how long?			17(40.5%)	18(42.8%)	7(16.7%)

The results revealed that all forty-two (100%) instructors agreed that they were aware of the presence of the learning system. The results further revealed that thirty-six instructors (85.7%) used the e-learning system and six (14.3%) did not use it. Moreover, the results showed that e-learning instructors used the e-learning system at varying frequencies: only seventeen (40.5%) of the e-learning instructors used the system "very often", eighteen (42.8%) "occasionally", and seven (16.7%) "not very often".

Instructors' E-learning activities

Instructors were also asked what activities they performed in the e-learning system. This information is presented in Table 3 below.

Table 3: *Instructors' teaching and learning activities performed in the e-learning system*

Variables (teaching and learning activities)	YES (No. & %)	NO (No. & %)
Providing lectures online	10(23.8)	32 (76.2)
Providing tutorials online	15(35.7)	27(64.3)
Conducting discussion/charts online	19(45.2)	23(54.8)
Administering examinations online	0(0)	42 (100)
Administering tests online	20(47.6)	22(52.4)
Providing course outline online (syllabus)	30(71.4)	12(28.6)
Circulation of lecture notes & digital content	36(85.7)	6(14.3)
Providing assignments	35(83.3)	7(16.7)
Consulting students online	13(30.9)	29(69.1)
Providing written feedback online	26 (62.9)	16(38.1)
Grading students' work online	27(64.3)	15(35.7)
Uploading videos online	10(23.8)	32(76.2)
Uploading recorded lectures online	13(30.9)	30(69.1)
Providing recorded audio feedback online	11(26.2)	39(73.8)
PowerPoint presentations and multimedia demonstrations	35(83.3)	7(16.7)

The results show that thirty-six instructors (85.7%) used the system for the circulation of teaching notes, thirty-five (83.3%) for providing assignments, thirty (71.4%) for providing a course outline and twenty-seven (64.3%) for grading students' work online, thirty-five (83.3%) employed PowerPoint presentations and multimedia demonstrations, twenty-six (62.9%) provided written feedback online and twenty-seven (64.3%) gave students work online. Interestingly, thirty-two instructors (76.2%) reported that they did not give lectures online; twenty-seven (64.3%), did not provide tutorials online; twenty-three (54.8%) did not conduct online discussion/chats; all forty-two of the instructors (100%) reported that they had never administered examinations online; only twenty-two (52.4%) did not administer online tests and about thirty-seven (88.1%) did not provide recorded audio feedback online. Also, twenty-nine instructors (69.1%) did not engage in online student consultation; thirty-two instructors (76.2%) reported that they did not upload online videos and about thirty instructors (69.1%) reported that they did not upload recorded lectures online.

Instructors' motivational factors behind the use of e-learning

The study further examined instructors' motivational factors on the use of the e-learning system for teaching and learning at MU. This information is presented in Table 4 below.

The results show that thirty-eight instructors (90.5%) stated that *personal interest* largely accounted for the main motive for their use of e-learning, followed by twenty-nine (69%) who indicated it was *the nature of the subject I teach*. Twenty-five instructors (59.5%) stated that *I find it a convenient way to teach* while twenty-four (57%) indicated *because I believe in the potential of e-learning in improving student learnin*g. These findings imply that instructors were more intrinsically motivated (enjoyment-based) about the use of e-learning. Thus, their belief was in the power of e-learning and personal interest.

Table 4: *Instructors' motivational factors behind the use of e-learning*

Variables (motivational factors)	To a large extent (N/%)	To some extent (N/%)	Not sure (N/%)	Not at all (N/%)
Personal interest	38 (90.5)	4(9.5)	-	-
Prescribed by university management	23 (54.8)	16(38)	2(4.8)	1(2.4)
The nature of the subject I teach	29 (69)	9(21.4)	2(4.8)	2(4.8)
Differently located students	22(52.4)	12(28.6)	2(4.8)	6 (14.2)
Due to many students in my class	18(42.9)	18(42.9)	1(2.3)	5(11.9)
Because I believe in the potential of e-learning	24(57)	15(36)	3(7)	-
I find it a convenient way to teach	25(59.5)	13(31)	3(7.1)	1(2.4)

Further, as shown in Table 4, among the motives mentioned, technological convenience and the nature of the subject were also important motives. Twenty-three instructors (54.8%) gave reasons such as e-learning is *prescribed by university management* and twenty-two (52.4%) indicated having several *differently located students*.

Instructors' competences on the use of e-learning system for teaching activities

Instructors were also asked about their competence in designing and implementing e-based teaching and learning activities. These activities represent the behaviour, attitudes, and involvement in e-learning utilization. The study also aimed at exploring instructors' capability in the use of e-learning. This was done by asking respondents to indicate the category to which they belonged pertaining to the use of e-learning: *Qualified, Novice, Average, Inadequate*. The findings are summarized in Table 5 below.

As can be seen in Table 5, instructors' competencies on various aspects related to an e-learning system usage were examined. Instructors' competencies were measured through a self-designed scale which requested them to offer information about the extent to which they are competent on several e-learning applications. For example, regarding the basics of e-learning, the data indicate that fifteen instructors (35.7%) self-described their competence as average, while ten (23.8%) self-described as novice, ten (23.8%) self-described as qualified and seven (16.7%) self-described as inadequate. The results imply that most instructors with basic competency in e-learning tended to utilize the platform for teaching and learning.

In a nutshell, the data presented in Table 5, indicate that most instructors were either in novice or average states of being competent on an e-learning usage. About half of the respondents, (54.8%) reported that they are at the average level regarding implementation of quality assurance issues related to e-learning, while 4.8% self-described as qualified, 14.2% were novice and 11.9% self-described as having inadequate competencies on implementation of quality assurance issues while using e-learning.

Table 5: *Instructors' competence on the use of e-learning through various tasks*

Variables (competencies)	Qualified	Novice	Average	Inadequate
Basics of e-learning (types of e-learning, time vs. place – Asynchronous vs. Synchronous, e-instructor)	10 (23.8%)	10(23.8%)	15 (35.7%)	7(16.7%)
Instructional design issues on the use of e-learning	11 (26.2%)	5(11.9%)	20(47.7%)	6(14.2%)
Instructional methods, techniques and training effectiveness on the use of e-learning	10 (23.8%)	5(11.9%)	14(33.3%)	13(30.9%)
E-assessment and evaluation (tests, essays, assignments)	9(21.4%)	7(16.7%)	20(47.6%)	6(14.3%)
Quality assurance issues of e-learning and internet connectivity	2(4.8%)	6(14.2%)	23(54.8%)	11(26.2%)
Ethical issues on the use of e-learning	2(4.8%)	10(23.8%)	25(59.5%)	5 (11.9%)
Multimedia issues on the use of e-learning	10(23.8%)	14(33.3%)	12(28.6%)	6(14.3%)

Moreover, the instructors were also asked about the areas of e-learning in which they needed help and training. The data are shown in Table 6 below.

Table 6: *E-learning training areas where help is needed*

Variables (training areas)	To a large extent (N & %)	To some extent (N & %)	Not sure (N & %)	Not at all (N & %)
Typing using computers, internet connectivity	20 (47.6)	10 (23.8)	10(23.8)	1(2.4)
Logging into the e-learning platform	29 (69)	3 (7.2)	9(21.4)	1(2.4)
Interacting with students in online activities	30 (71.4)	9 (21.4)	3(7.2)	-
Assessing and evaluating online activities	35 (83.3)	7 (16.7)	-	-
Designing online activities	36 (85.7)	6 (14.3)	-	-

Regarding instructors' competencies in the use of e-learning, the instructors were asked about the areas in which they would like to receive training to improve the use of the e-learning system.

Regarding the need for training, thirty-six instructors (85.7%) indicated the design of online activities, thirty-five (83.3%) selected evaluation of online activities, while thirty instructors (71.4%) indicated interacting with students in online activities, and twenty-nine (71.4%) identified logging into the e-learning system as the most critical areas in which they need training. Less than half of the respondents, twenty (47.6%), mentioned training in using computers with specific reference to type on the computers. When instructors were asked to suggest how e-learning can be improved at the university, two main issues were identified; fifteen instructors (35.7%) stated that use of the Internet and learning technologies should be encouraged to embrace further e-learning and twenty-seven instructors (64.3%) stated that human-computer interaction should be improved to promote individual competencies in teaching.

The findings suggest that the above capacities, preparedness, and competencies have been enjoyed because most of the teaching and learning at MU is conducted through the use of the conventional F2F approach (in some cases in a very limited blended learning approach).

DISCUSSION

In keeping with the research objectives and research questions, this study sought to investigate "Instructors' Perspectives, Motivational Factors and Competence in the Use of an E-Learning System in a Tanzanian University".

Instructors' perspectives on the use of the e-learning system

This study has shown that most of the instructors use some form of e-learning in teaching their courses at MU. The responses suggest that the instructors perceive e-learning in different ways. Thus, its full utilization does not correlate with most of the features available on the platform. In support of this, a study conducted in Botswana revealed that instructors considered the time factor the most vital challenge related to the use of the platform (Uziak, Oladiran, Lorencowicz & Becker, 2018). Apart from time factors, instructors' perspectives on the use of e-learning vary because e-learning is not a simple application of ICT in education, but a case of expanding learning possibilities and a new frontier in education. As such, the successful use of the e-learning system requires a joint effort of instructors, university top management and policymakers who will influence and enforce its implementation. The study has shown that the instructors used the e-learning system mainly for the provision of teaching notes, assignments, course outlines and grading students' work online. This finding indicates that there is still minimal use of the e-learning system. This may be related to the fact that traditional F2F teaching is still dominant and that instructors have not yet entirely changed their mindset and perspectives about the new innovative teaching and learning approaches.

Different studies in developing countries support the finding that instructors mainly use learning management systems as a tool for enhancement purposes rather than an advanced level that requires the transformation of teaching and learning methods and tasks (Nkonki & Ntlabathi, 2016 Uziak et al., 2018). Still, low usage of the e-learning systems has also been acknowledged by several scholars (Mayoka & Kyeyune, 2012; Mtebe, 2015; Vayuvegula., 2015) whose studies focused on covering LMSs success in the South of Sahara, particularly in Kenya, Tanzania, and Uganda. In the context of the current study, lack of usability evaluations and usability violations (some functions may not be working in the users' settings), attitudes, awareness and accessibility of e-learning, lack of guidelines and policy specified for e-learning were identified as factors for low usage of the LMSs. Ideally, the findings possibly imply that the use of the e-learning system in most developing countries (MU exclusively) should be addressed as a joint effort among multiple stakeholders.

Nevertheless, the study has shown that most instructors did not conduct lectures or tutorials online, nor did they provide recorded audio feedback online. This finding implies that instructors

are either reluctant to accept changes to their styles of instruction or do not have relevant skills on how to engage in those learning activities. Similar findings were noted by Mtebe (2015) in which many instructors in Africa, including Tanzania, were found to have inadequate skills in developing and using online resources as well as multimedia demonstrations. Therefore, there is a need to train instructors more on the use of various educational related technologies which align with the use of the e-learning system, such as blended learning approaches, online teaching tools and presentation tools, with an emphasis on pedagogical skills. This is supported by Levy (2003) and Machumu, Ghasia & Musabila (2018) who assert that e-learning instructors require specific skill sets regarding pedagogy because they are assumed to play a role such as planners, designers, guides, mentors, and facilitators, and will no longer be seen as leaders and lecturers.

Instructors' motivational factors on the use of e-learning

Adoption of novel learning technologies like e-learning at any university usually comes with readiness and motivation to accept and learn new things related to its application. For example, instructors training in the use of different e-learning features, installation of software and hardware, motivation to engage students in e-learning and ability to design e-learning content seems to be much in demand in developing countries - all areas in which educational technologists and digital content designers should invest to assist instructors and educational institutions to accomplish their objectives in the use of e-learning. These and many others appear to be novel to instructors (who had been engaged in the traditional F2F teaching approach) and they need strong motivation to become active users of the e-learning system. However, it has been evidenced that instructors who are very comfortable with new technologies (e-learning) would accept this learning transition more easily than those who are uncomfortable, lack confidence and are inexperienced with use of new technologies (Alsulimani & Kaabi, 2018). This implies that, for the successful implementation and use of e-learning at MU, instructors require both extrinsic and intrinsic motivation as well as practical training on several e-learning features. As an example, this study has found that e-learning instructors were more intrinsically motivated by various discernments, such as belief in the power of e-learning, personal interests, nature of the course they teach and technological convenience in using e-learning systems to enhance students' learning.

Kaufmann, Schulze and Veit (2011) found that intrinsic motivation was regarded as crucial when implied knowledge in and between learning teams must be transferred. Having students who are in distant areas away from the campuses and the university's encouragement to use e-learning were among the extrinsic factors for some of the instructors to use the e-learning system. This shows that both intrinsic and extrinsic factors play a significant role in influencing instructors to use innovative teaching and learning tools or platforms through which technology-enhanced teaching is conducted, like LMSs in this case. To enhance instructors' motivation in the use of e-learning, an effective e-learning course, workshop, or seminar should be conducted for them, which should involve training, time, experience, quality, ethical issues, commitment, good communication, pedagogical skills, and a real passion for learning. This perhaps implies that instructors are highly motivated in the use of e-learning because of the various benefits offered.

Instructors' competences in the use of e-learning for teaching activities

This study examined instructors' competences on the use of e-learning. It should be noted that, to excel, e-learning instructors require appropriate competencies. These skills are specific skill sets that necessitate moving beyond traditional pedagogy to adopt new, more facilitative practices. Moreover, when teaching in a blended learning environment, e-learning courses require traditional course instructors to have new skills in using online platforms (Moodle, CANVAS, and Blackboard, among others). In supporting this claim, Levy (2003) concluded that for successful use of the e-learning platform, instructor training is particularly needed to support the faculty in a

field that is rapidly changing. These include capabilities such as creating an effective online syllabus, structuring the content, maintaining the core content, fostering learner-centeredness, and deciding when to contribute to an online discussion, among others. Instructors must have skills to design, facilitate, interact, assess, and provide feedback to learners. Our study has shown that most of the instructors acknowledged that they have received training in use of the e-learning system, especially in areas like designing online content and interacting with students online. Also, in assessing and evaluating online activities, most of them had average competence in designing and implementing e-based teaching and learning activities. Having average competence might be related to the nature and amount of training provided as well as the lack of readiness, interest, and intrinsic motivation. This is reflected in the instructors' responses that they still considered themselves as not qualified to use the system for enhancing their teaching.

Furthermore, the fact that most of the instructors never used functions such as providing feedback online, conducting tutorials, tests, and lectures online, despite having students at different campuses, reflects the need for continuing training of the instructors in higher learning institutions. This is because there is still a negative attitude towards the use of ICT and that traditional teaching and learning approaches are still favoured by instructors as evidenced in several studies (Ghasia et al., 2018; Mtebe & Raphael, 2018). Nevertheless, computer access and Internet connectivity were among the two major challenges highlighted as impacting the effective use of the e-learning system at the University. These findings concur with those of Mtebe and Raphael (2017) in which, among others, Internet connectivity was a major challenge in e-learning implementation in the higher learning institutions.

Instructors' e-learning activities

In this study, several e-learning activities performed by instructors were examined. It was found that instructors' activities conducted via e-learning vary based on their competence in the use of the MU e-learning platform. For example, it was found that twelve out of the forty-two instructors had significant key skill sets in designing and administering tests online. This implies that either the instructors at MU embrace conducting traditional F2F controlled tests or they have some problems in designing online tests. Perhaps the lack of facilities or essential support services, awareness, and readiness for the use of several e-learning activities during the implementation stages hindered full utilization of the e-learning platform. Instructors need the compatibility of hardware and software and high Internet speed to utilize fully the e-learning system. However, out of fourteen e-learning activities measured, only providing assignments via the e-learning platform was preferred and practiced by most of the instructors. Perhaps these findings might imply that the pedagogy of online learning must be a part of training and the virtual environment to ensure quality learning by students (Phipps & Merisotis, 2000). Based on the findings, we assert that instructors require necessary and specific skill sets to embrace online learning environments regardless of the challenge of power outages (which is a temporary problem). In support of that, Levy (2003) asserted that although the principles of designing online and traditional F2F activities are similar, instructors need training and support to be willing to adopt this novel teaching paradigm. In addition, instructors need to be cognizant of how the details of their course will be implemented in the new environment (Kattoua, Al-Lozi and Alrowwad, 2016). In the context of MU, where there is lack of adequate support services for students and instructors, e-learning instructors must be knowledgeable and skilled on how to design learning activities.

IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The findings of the current study have both methodological and practical implications. First, the study used a quantitative methodological approach to examine instructors' perspectives, motivational factors, and competences in the use of e-learning at MU which contributed to the understanding of instructors' perspectives, motivation, and competences. The findings imply that, although MU instructors are motivated to use e-learning, they lack significant key skill sets to advance several learning features within the platform, which might enable them to practice and design learning activities. As such, the study is a wake-up call for other universities in a similar context to embrace staff training and development. The study contributes to the broad understanding of the key competences needed by e-learning instructors who are likely to engage students in quality learning. For successful e-learning implementation in developing countries to take place, e-learning instructors should be equipped with the necessary infrastructural support services and facilities to enhance the full utilization of their competences. The findings also offer both policy and practical implications for e-learning instructors, policymakers and university management in developing countries with reference to how e-learning should be embraced. Interestingly, the findings of this study pave the way for higher learning institutions, with a focus on staff training and support services, to embrace the utilization of the available technologies for teaching and learning.

Moreover, the finding that instructors recognise the potential of e-learning and strive to use innovative teaching and learning methods, reflect their understanding of the Tanzanian 2015-2020 Research Priorities, which emphasize innovative ways of providing quality education. The findings of this study suggest a need to develop instructors' competences in areas such as developing online content, quality assurance issues, interacting with students online, marking and assessing/evaluating learning tasks and activities online. Furthermore, the university under study, and possibly other related universities which use innovative teaching and learning methods, need to continue to prioritize and emphasize the use of LMSs in teaching and learning to reach their off-campus and on-campus students anytime, anywhere and at a pace at which their students can learn.

This study has limitations regarding sample size and the use of the survey method with questionnaires, as only forty-two instructors volunteered to participate in the study. Future studies need to involve more instructors and use both the survey method with questionnaires and interviews to gain more insight into understanding the perceptions, motives and competences to use e-learning in higher education teaching-learning practices. While there are more than ten higher learning institutions in the country that use the LMSs (mainly Moodle), only one university was involved in the study. This has limited our study in that the results obtained are specific to the MU and cannot be generalized to all of the other higher learning institutions in the country. However, this study offers useful insights for instructors, university management, policymakers, and e-learning practitioners in the context of a lack of resources and a lack of staff development and training, regardless of their zeal to embrace technological advances in education.

CONCLUSIONS

The study provides three conclusions as follows. First, instructors are aware of the existence and the potential of the innovative teaching and learning methods in influencing students' learning. However, the use of such methods is still limited in the sense that instructors use the e-learning system to replicate traditional teaching by mainly providing notes, assignments, and course outlines online. The use of innovative teaching and learning methods necessitates a change of mindset in the way learning is perceived. Learning needs to be regarded as a constructive, collaborative process in which both students and instructors participate in the teaching-learning process from which students construct their knowledge.

Second, instructors who use innovative teaching and learning approaches and strategies (cf., blended learning, online learning, mobile learning, transformative learning, and e-learning) are

intrinsically motivated. This warrants a sustained use of different methods, approaches, strategies, and techniques to improve student learning and student participation, as well as students' technology use, for active knowledge development after school and for their working lives. The fact that the university under study seems to encourage and motivate its staff to use such innovative teaching and learning approaches is very promising, as it relates to the adoption and use of the LMSs in enhancing student learning.

Finally, as most instructors seem to lack competence in the use of innovative teaching and learning methods, especially in the areas of developing online content, online assessment and evaluation, and interacting with students online, the need to provide continued training and support to such motivated instructors is paramount. Training in e-learning and using the e-learning system has focused mostly on the technology part of using Moodle and seems to pay little attention to the pedagogical side of it, although the latter is most important in influencing student learning. The way forward is for the MU to ensure that these issues are addressed, so that learning technologies and their adoption and sustained use can be as seamless as possible. This is the only way to ensure that both instructors and learners can capitalise on the full benefits that can be derived from technology-based education. Generally, the way forward for MU, where this study was conducted, is that effective use of teaching-learning materials, tools and resources can engender significant learning experiences for learners.

REFERENCES

Alsulimani, T., and Kaabi, H. 2018. 'The effect of e-learning on teachers' motivation: A case study in Jeddah University'*. International Journal of Management and Information Technology,* vol. 14, no. 1, pp. 3316-3327.

Aginam, E., 2012). 'Microsoft, British Council plan 80 digital hubs in Africa'. Available at :https://www.vanguardngr.com/2012/02/microsoft-british-council-plan-80-digital-hubs-in-africa/ [Accessed 18 December 2019].

Akram, M., Ather, H. M., Tousif, M., and Rasul, S., 2012. 'The perception of teachers in using computer-based technology at higher education'. *International Journal of Social Sciences and Education,* vol. 2, no. 1, pp. 523-534.

Adkins, S.S. 2013. '*The Africa market for self-paced eLearning products and services: 2011-2016 forecast and analysis'*, Monroe, WA: Ambient Insight.

Almasi, M., Machumu, H., and Zhu, C., 2017. 'Internet use among secondary school students and its effects on their learning', INTED2017. *Proceedings of 11th Annual International Technology, Education and Development,* IATED, 6th-8th March, Valencia, Spain., pp.2379-2390.

Awouters. V., and S. Jans. 2009. 'E-learning Competencies for Teachers in Secondary and Higher Education'. International Journal of Emerging Technologies in Learning (iJET) vol. 4, no. 2, pp. 58-60. doi:10.3991/ijet.v4i2.739

Baker, D., Bliss, A., Chung, R., and Reynolds, C., 2013. '*E-learning for teacher training in*

Tanzania: Policy, players, models, and recommendations for the Asante Africa foundation'. Berkeley, CA: University of California, Berkeley.

Becker, H. J., 1994. '*Analysis and trends of school use of new information Technologies',* Irvine, CA: University of California, Irvine, Department of Education.

Bekele, T. A., 2010. 'Motivation and satisfaction in Internet-supported learning environments: A review'. *Educational Technology & Society,* vol. 13, no. 2, pp.116-127.

Bhalla, J., 2013. 'Computer use by schoolteachers in teaching-learning process'. *Journal of Education and Training Studies*, vol. 1, no. 2, pp. 174-185.

Bigatel, P. M., Ragan, L.C., Kennan, S., May, J., and Redmond, B. F., 2012. 'The identification of competencies for online teaching success'. *Journal of Asynchronous Learning Networks*, vol. 16, no. 1, pp. 59-78.

Brophy, J. (2010). '*Motivating students to learn'* (3rd ed.). New York., NY: Routledge.

Goodyear, P., Salmon, G., Spector, J. M., Steeples, C., and Tickner, S., 2001. 'Competences for online teaching: A special report', *Educational Technology Research and Development*, vol. 49, no. 1, pp. 65-72.

Ghasia, M.A., Machumu, H., Zhu, C., and DePryck, K. 2020.'Reflection on the e-learning system of the Mzumbe University in Tanzania: Success, challenges and way forward'. *International Journal of Education and Development using Information and Communication Technology*, vol. 16, no. 2, pp.109-121.

Ghasia, M., DE Smet, E., Machumu, H., and Musabila, A.K. 2018. 'Towards mobile learning deployment in higher learning institutions: a report on the qualitative inquiries conducted in four universities in Tanzania'. *Africa Focus,* vol. 31, no.1, pp.115-132.

Horn, M., and Staker, H. 2014. 'Blended: Using disruptive innovation to improve schools'. Christiansen Institute. San Francisco: Jossey-Bass.

Kaufmann, N., Schulze, T., and Veit, D., 2011. 'More than fun and money: Worker motivation in crowd sourcing – A study on mechanical Turk'. *Proceedings of the Seventeenth Americas Conference on Information Systems,* August 4th-7th, Detroit, Michigan pp.1-11.

Kattoua, T., Al-Lozi, M., and Alrowwad, A. 2016. 'A review of literature on e-Learning systems in higher education. *International Journal of Business Management and Economic Research (IJBMER),* vol. 7, no. 5, pp. 754-762.

Levy, S., 2003. 'Six factors to consider when planning online distance learning programs in

higher education'. *Online Journal of Distance Learning Administration* vol. 4, no. 1, pp.1-20. Available at: http://www.westga.edu/%7Edistance/ojdla/spring61/levy61.htm [Accessed 18 March 2020]

Machumu, H., and Zhu, C., 2017. 'Students' motivation to learn and constructivist-based engagement learning in blended learning environment courses', *Proceedings of the South Africa International Conference on Educational Technologies.* SAICET2017., 24th – 26th April, pp.91-105, Pretoria, South Africa.

Machumu, H., Ghasia, M. A., and Musabila, A. K., 2018. 'Blended learning activities in blended learning environments: Experiences from Mzumbe University Tanzania'. *Proceedings of the World Conference on Education Media and Technology.* EdMedia 2018, June 25th-29th., Amsterdam, The Netherlands.

Machumu, H. 2021). 'Teachers' motivation and constructivist teaching activities in blended learning environments: The engagement perspective. In L.N. Roberts (Ed.), Redesigning teaching, leadership, and indigenous education in the 21st Century (pp. 1-15). IGI Global Publisher. DOI: 10.4018/978-1-7998-5557-6.ch001

Mayoka, K G., and Kyeyune, R. 2012. 'An Analysis of e-learning information system adoption in Ugandan Universities: Case of Makerere University Business School. *Information Technology Research Journa*l, vol. 2, no. 1, pp. 1-7.

Mtebe, J., 2015. 'Learning management system success: Increasing learning management system usage in higher education in sub-Saharan Africa', *International Journal of Education and Development using ICT*, vol. 11, no. 2, pp. 51-64.

Mtebe, J., and Raphael, C., 2017. 'A decade of technology-enhanced learning at the University of Dar es Salaam, Tanzania: Challenges, achievements, and opportunities. *International Journal of Education and Development using ICT*, vol. 13, no. 2, pp. 103-115.

Mtebe, J. S., and Raphael, C., 2018. 'A critical review of e-learning research trends in Tanzania', the *2018 IST-Africa Week Conference (IST-Africa)*. IEEE.

Mynbayeva, A., Sadvakassova, Z., and Akshalova, B., 2017. Pedagogy of the twenty-first century: innovative teaching methods. In O. Bernad-Cavero & N. Llevot-Calvet (Eds), New Pedagogical Challenges in the 21st Century - Contributions of Research in Education, London: IntechOpen Limited (pp. 441-466).

Mzumbe University (MU), 2015. 'E-learning utilization report of 2014/2015', (unpublished report) Mzumbe: Mzumbe University.

Mzumbe University (MU), 2016. 'E-learning utilization report of 2015/2016', (unpublished report) Mzumbe: Mzumbe University.

Mzumbe University (MU), 2017a. 'E-learning utilization report of 2016/2017', (unpublished report)

Mzumbe: Mzumbe University.

Mzumbe University (MU), 2018. 'Mzumbe University Facts and Figures 2018/2019', Mzumbe: Mzumbe University.

Mzumbe University (MU), 2015. 'Mzumbe University Business Continuity Plan', (unpublished report), Mzumbe: Mzumbe University.

Mzumbe University (MU), 2014. 'Mzumbe University Information Systems Integrated Policy' (MUISIP), Mzumbe: Mzumbe University.

Mzumbe University (MU), 2018. 'Mzumbe University Examination and Students' Assessment Criteria By-Laws', Mzumbe: Mzumbe University.

Mzumbe University (MU), 2017b. 'Mzumbe University Corporate Strategic Plan 4th, 2017-2022', Mzumbe: Mzumbe University.

Nkonki, V., and Ntlabathi, S., 2016. 'The forms and functions of teaching and learning innovations on blackboard: substantial or superficial?' *The Electronic Journal of e-Learning*, vol. 14, no. 4, pp. 258-265.

Perumal, V.R., and Bakar, A.H.A., 2011. 'The influence of technology: factors motivating project management team successfully'. *International Journal of Economics and Management Sciences,* vol. 1, no. 5, pp. 92-96.

Phipps, R., and Merisotis, J., 2000. 'Quality on the line: Benchmarks for success in Internet-based distance education'. Washington, DC: The Institute for Higher Education Policy. Retrieved July 2, 2003, from http://www.ihep.com/Pubs/PDF/Quality.pdf.

Swart, P., and Wachira, E. M. (2010). *Tanzania: ICT in Education situational analysis.* Dar es Salaam: Global e-schools and Communities Initiative.

The Tanzania Commission for Science and Technology, 2016. 'Research priorities for Tanzania – 2015-2020', Dar Es Salaam: Apex Media Limited.

The United Republic of Tanzania (URT), 2007.'The Mzumbe University Charter and Rules 2007'. Dar Es Salaam: The State House.

Tracy, B., 2014. 'The four factors of motivation'. Available at: http://www.amanet.org/training/articles/the-four-factors-of-motivation.aspx [Accessed 18 March 2020].

Turner, J. C., and Patrick, H., 2008 'How does motivation develop and why does it change? reframing motivation research'. *Educational Psychologist,* vol. 43, no. 3, pp. 119–131.

Vayuvegula, A., 2015. 'Motivational factors to consider in e-learning & LMS design'. Available at

http://blog.commlabindia.com/elearning-design/motivational-factors-for-elearning#sthash.UQyi1FPN.dpuf [Accessed 29th March 2019].

Woolf, N., and Quinn, J., 2009. 'Learners' perceptions of instructional design practice in a situated learning activity', *Education Tech Research Development*, vol. 57, no. 1, pp.25-43.

United Republic of Tanzania. 2016. 'National information and communications technology policy'. Dar Es Salaam: Ministry of Works, Transport and Communication.

Uziak, J., Oladiran, M.T., Lorencowicz, E., and Becker, K., 2018. 'Students' and instructor's perspective on the use of Blackboard platform for delivering an engineering course'. *The Electronic Journal of e-Learning,* vol. 16, no. 1, pp. 1-15.

Yukselturk, E., and Bulut, S., 2007. 'Predictors for student success in an online course', *Educational Technology & Society,* vol. 10, no. 2, pp. 71–83.

Yuksel, I. 2009. 'Instructor competencies for online course'. *Procedia-Social and Behavioral Sciences*, vol. 1, no. 1, pp. 1726-1729.

Zhu, C., and Mugenyi, J.K. 2015. 'A SWOT analysis of the integration of e-learning at a University in Uganda and a University in Tanzania'. *Technology, Pedagogy and Education,* vol. 24, no. 5, pp. 1-19.
