Promoting Teachers and Students' Involvement in e-Learning in Tanzania: A Case of Two Higher Learning Institutions

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Abstract: *A successful e-learning programme depends, to a greater extent, on how actively teachers and students are involved in preparing, accessing and managing educational content.This paper aims at exploring strategies employed in promoting teachers and students' involvement in e-learning in Tanzania's higher learning institutions (HLIs). Data were gathered from two higher learning institutions in Tanzania using a series of semi-structured interviews with e-learning experts. Thematic analysis was used to identify, analyse and record themes from the generated data. Two major interaction strategies were identified: Teacher-students and student-content strategies. The study further describes best practice approaches the two HLIs deployed to effect the two strategies. Based on the findings, the study recommends for the provision of training in e-learning to teachers and students to enhance their participation on e-learning platforms. The study further recommends for an empirical research to investigate how social media can be used to promote the unnoticed teacher-teacher and student-student interactions.*

Keywords: e-learning; e-learning experts; higher learning institutions

Introduction

ICT and Higher Education

The unprecedented rapid development in technologies in almost every field of knowledge has seen Information and Communications Technology (ICT) being employed globally in practically all fields from traditional ones such as broadcasting technologies (radio and television) to current ones such as computers, mobile devices and the Internet. To-date, many studies have been carried out to establish how computers, mobile devices and the Internet can be used optimally to enhance efficiency, effectiveness, support and access to education at all levels of learning (Commonwealth of Learning [COL], 2003; Weller, 2007; Anderson, 2008a; Garrison, 2011; Meenakshi, 2013). ICT is also increasingly central to the operations of higher education. In fact, higher learning institutions (HLIs) are experiencing changes, not only in terms of curricula but also in terms of approaches to learning and teaching

(Weller, 2007; Cassidy, 2016; Alves, Miranda & Morais, 2017). These changes in learning strategies from traditional to dynamic interactive ones based on the use of ICT have created a learner-centred learning environment, which was not common in traditional approaches to classroom learning (Ally, 2008). In general, the integration of ICT into the education system has fostered the use of different terms that explain the adoption and use of ICT in educational settings. These include electronic learning (e-learning) (Salmon, 2003; Guri-Rosenblit & Gros, 2011; Sangra, Vlachopoulos & Cabrera, 2012; Hammad 2018). The term *e-learning* refers to all aspects of electronically-supported learning (whether in networked/non-networked environments) that allow learners to interact with teachers, content and other learners regardless of place and time (Brown, 2003; Sangra *et al*., 2012; Lashayo & Md Johar, 2018).

E-learning in Tanzania

The Tanzania government's support to e-learning is manifested in its policy papers and initiatives. For example, in 1996 Tanzania launched a National Science and Technology Policy, which advocates for the integration of science and technology in education in addition to providing for adequate science and technology learning and teaching facilities in education (United Republic of Tanzania [URT], 1996). In 2003, the National ICT policy was launched, with emphasis on supporting the creation and development of ICT materials by encouraging local content development for electronic activities/services and promoting the inclusion of schools in local multi-media development (URT, 2003a).

To harmonise ICT and education initiatives the government, through its Ministry of Education, developed an Information and Communications Technology (ICT) Policy for Basic Educationin of 2007 that structured the adoption of ICT in the education sector (URT, 2007). The policy suggests the use of a number of technologies, such as radio, computers, mobile phones and the Internet (Swarts & Wachira, 2010). The priorities included teachers' training colleges (TTCs) followed by secondary schools and, finally, primary schools (URT, 2007). The most recent initiative is the e-reader project, which is supported by the United Nations High Commissioner for Refugees (UNHCR) and a non-profit enterprise Worldreader. The initiative is aimed at providing electronic learning to 2,300 students in four secondary schools in western Tanzania (Williams, 2014). Generally, HLIs in Tanzania have invested significantly in ICTs. Hooker, Wachira and Verma (2011) report that all universities have computer centres connected via satellite, available for both teachers and students. Moreover, education and research networking activities are mushrooming, with e-learning becoming the key development point

for many HLIs as it serves as a strategy for increasing access (Swarts & Wachira, 2010; Hooker *etal.,* 2011; Lwoga & Komba, 2015; Lashayo & Md Johar, 2018).

Studiesindicate that the use of digital e-learning environments has formally been adopted by The Open University of Tanzania (OUT, 2014; Lashayo & Md Johar 2018) and the University of Dar es Salaam (Hooker *et al*., 2011). To facilitate learning, OUT has developed an e-learning platform called *OUT Learning Management System* (OUTLeMS) where most of the education resources are placed for students (Sanga *et al*., 2013). Similarly, the University of Dar es Salaam (UDSM) has an e-learning platform called *UDSM Moodle Learning Management System* (Munaku, 2013) which the students use to access learning materials and conduct online discussions with their lecturers. Similar e-learning initiatives are also emerging in other institutions such as Sokoine University of Agriculture (Sanga *et al*., 2013) and Mzumbe University (Lwoga & Komba, 2015).

Literature Review

A successful e-learning programme depends, to a greater extent, on how actively teachers and students are involved in preparing, accessing, managing and distributing educational content (Mwanza & Engestrom, 2005). In the educational process, the term involved refers to learners' participation. In this regard, the highly interactive progression of learning experiences is geared towards achieving educational goals (Garrison & Vaughan, 2008).

In other words, involvemententails learners seeking and responding to information, teachers sending and receiving feedback, teachers and students participating in asynchronous and synchronous discussions, including sharing of experiences (Mwanza & Engestrom, 2005; Garrison & Vaughan, 2008). Garrison and Anderson (2003) treat the value of interaction in the educational process as learning activities among teachers, students and content. Literature holds that learners, in e-learning, can construct their own meaning and remain involved in e-learning in which they feel a sense of educational community with their teachers, other learners and the content (Garrison & Vaughan, 2008; Anderson, 2008a; Garrison, 2011; Mason, 2011). Garrison and Anderson (2003) outline six forms of e-learning interaction support that include teacher-to-student, student-to-student, student-to-content, teacher-to-content, teacher-to-teacher and content-to-content interactions. Teacher-to-studentinteraction is a two-way interactivity between a teacher as a subject expert or facilitator of learning and his or her students as learners

or knowledge seekers (Miyazoe & Anderson, 2010). In this interaction, teachers are involved in a mediated dialogue with each student (Garrison & Anderson, 2003). However, the extent of this interaction depends on the kind of technology in use. For example, in blended learning students engage in an online discussion forum and use communication networks with their peers as well as teachers, which are supported by face-to-face sessions that allow teachers to respond to students' queries and can diagnose students' misconceptions on special issues or topics in group discussions or tutorials (Garrison, 2011).

Student-to-student interaction, on the other hand, mainly involves students. This interaction broadens students' knowledge and increases their satisfaction through the support of other learners (He, 2013). In his analysis on the theory and practice of online learning, Anderson (2008b) found a higher level of students' knowledge, social interactivity and teaching presence in student-led teams than in teacher-led ones. He (2013: 98) argues that "students were much more active in interacting with their peers than with their instructors." This has also been suggested by Rourke and Anderson (Anderson 2008b: 57).

As for student-to-content interaction, it occurs when a student is interacting with content for the purpose of gaining knowledge and understanding (Miyazoe & Anderson, 2010). One of the leading challenges to development of e-learning programmes is the easy access to learning materials. In traditional face-to-face learning, this interactionentails using texts and library resources (Garrison & Anderson, 2003). In the e-learning context, the contents areon-screen textual form sometimes with paper print-outs (Garrison & Anderson, 2003). This type of interaction is supported by a variety of online computer-assisted instructions, simulations and presentation creation tools (Garrison & Anderson, 2003; Anderson, 2008b).

Teacher-to-content interaction refers to teachers' role in the creation of content, that is, the development of learning objects, complete courses and associated learning activities (Anderson, 2008b; Miyazoe & Anderson, 2010). Hase and Ellis (2001) note that content should be designed in such a way that it does not only develop competency but also aspects of capability such as independent learning skills, creativity and working in teams. In fact, teacher-to-content interaction allows teachers to evaluate continuously and up-date their materials through research, reading books and publications as well as receiving contributions from other experts for continuing learning (Anderson, 2008b). Teacher-to-teacher interaction implies an active interaction

between a teacher and other teachers to enhance professional developments in their respective disciplines (Miyazoe & Anderson, 2010). In e-learning, teachers can share knowledge via textual discussion, for example, instant messaging in a synchronous mode and message boards or Internet forums in an asynchronous mode (Anderson, 2008b).

Moreover, they can also share knowledge via audio, video or other Internet-supported media (Ally, 2008). Furthermore, teacher-to-teacher interaction is essential in knowledge growth and discovery in their subject domains as well as in developing quality instruction that meets students' learning expectations and outcomes (Garrison & Anderson, 2003; Anderson, 2008b). Anderson (2008b: 59) describes another category of content-to-content interaction, whichis an emerging "…mode of educational interaction wherein content is programmed to interact with other automated information sources that constantly refreshes itself and acquires new capabilities, through updates and interaction with other content sources." With rapid change in technology, Web technology has expanded to the semantic web, which aims at enabling automatic retrieval (machine-accessible/understandable), extraction, integration, sharing and re-use of information on the World Wide Web (Mcilraith, Son & Zeng, 2001; Jindal, Bawa & Batra, 2014).

Anderson (2003) contends that semantic web technology offers an environment for storing, searching and computing content automatically through autonomous agent technologies. The autonomous agents are software systems (such as autonomous robots) for performing some set of operations on behalf of a user or another programme so as to actuate what it senses in future (Tumer, Agogino & Wolpert, 2002). Effective use of such systems in e-learning encourages migration to content-based forms of interaction where content or learning resources will be able to interact, update and improve without direct human intervention (Anderson, 2003; Miyazoe & Anderson, 2010).

On the whole, the rapid development of ICT has witnessed HLIs' adoption of e-learning techniques in their learning and teaching processes (Glenn, 2008; Mason, 2011; Lwoga & Komba, 2015; Alves, Miranda & Morais, 2017; Lashayo 2018). Through e-learning, HLIs can establish effective support mechanisms, which enable students to interact with teachers, content and other students through face-to-face tutorials and ICTs (Guri-Rosenblit, 2009). This paper, therefore, seeks to identify strategies necessary to optimise teachers' and students' involvement in e-learning in Tanzania's higher learning institutions. The study is guided

by the research question: "What best strategies can be utilised to optimise teachers' and students' involvement in e-learning?"

Methodology

The study involved seven e-learning experts from two HLIs who were purposively selected based on their professional roles, expertise, academic qualifications and their direct involvement in e-learning programmes. Generally, duties of e-learning experts in HLIs include installation and management of learning management systems (LMS), security, operation and user support. They also conduct system user training for both teachers and students. All seven e-learning experts participated in face-to-face, semi-structured interviews. Table 1 presents their demographic characteristics.

This study used semi-structured interviews because of their flexibility andtheir facilitative role in probing, when asking questions, including follow-up questions, to gain a deeper understanding of phenomena under investigation (Kumar, 2011). The interviews attempted to capture strategies used to optimise teachers and students' involvement in e-learning. All ethical issues such as informed consent, anonymity and confidentiality were observed during and after data collection (Data Protection Act [DPA], 1998; British Educational Research Association [BERA], 2011). All the participants were also informed about the right to withdraw from the study before or during the data collection process. For anonymity purposes, the researcher disassociated names from responses and instead used alias names during all data analysis and interpretation processes. Thematic analysis was used to identify, analyse and record themes from data extracted from respondents (Bryman, 2012).

Table 1: **Respondents' Characteristics**

ID No	Job Title	Gender	Qualification	YoE	Institution
E1	Instructional Designer	Female	Masters	7	I1
E2	Computer Programmer		Bachelors	3	
E3	Online Programmes Coordinator	Male	Bachelors	3	I2
E4	System Administrator		Bachelors	6	
E5	Telecommunication Engineer		Bachelors	8	
E6	Director of Computer Services		Doctorate	16	
E7	Multimedia Producer		Masters	10	

***NB**: **E1 - E7** :- E-learning expert 1 to 7; **YoE** :-Years of Experience; **I1** and **I2** : Insititution 1 and 2*

Findings and Discussions

Two main themes emerged from semi-structured interview responses: Teacher-to-student interaction and student-to-content interaction (Appendix 1). Appendix 1 displays extracts of responses from e-learning experts on their experiences with how teachers, students and the content interact in an e-learning environment. Data from this table show that the main interactions occurred between teachers and students, on the one hand, and between students and content, on the other. However, interactive tools can also accommodate other modes of interactions such as student-to-student and teacher-to-teacher interactions.

Teacher-to-student Interaction

Data revealed that the open source Modular Object-Oriented Dynamic Learning Environment (Moodle) was the LMS used in both institutions I1 and I2. Moodle is a free source e-learning software platform used to facilitate online learning programmes (Weller, 2007; Cahir *et al*., 2014). Responses from interviewees indicated outline chats, forum, announcement, wiki and email as tools that were used to achieve teacher-to-student interactions. Interviewees reported that teachers' participation fostered effective teacher-to-student interaction:

> If you are a good facilitator you will use tools such as discussion forums to help students get involved with one another to create dialogue among students. So, I think the key aspect is having a good facilitator who can direct students to open up and talk amongst themselves. Moreover, a facilitator can use the tools in

> the system to communicate with the students, give them regular feedback...watch them as they discuss and intervene at some level, thus, creating interactions between students and the lecturer (E1, Appendix 1).

Such an assertion was also supported by E7:

> The teacher must be involved to create an environment to allow students to get involved in the discussions and share material resources in various places. I think teachers should play a part to ensure that the materials provide all kinds of questions that foster interactions among students. Teachers can use tools such as Wiki and give an exercise that will require students from various points to contribute to the Wiki... But, also a forum, teachers can come up with a topic that require students to make their contributions and challenge each other, hence allowing students to participate and understand each others' ideas and interact (Appendix 1).

Both comments above identify teachers as facilitators of learning in teacher-to-student mode of interaction and, thus, should participate fully in this process. In this regard, E4 commented:

> We have strategies, but the only strategy we have started is with teachers because I believe teachers can influence students to use online materials and so on. For most of the time, we encourage teachers to use all the tools… Also we encourage teachers to create an interactive content, which can encourage students to access it (Appendix 1).

The study findings further reveal that teachers' participation helped to promote effective teacher-to-student interaction. In this regard, students were organised into groups for team work. Teachers used LMS tools such as discussion forums to facilitate students' participation in addition to giving them regular feedback. In terms of teacher-to-student interaction, the e-learning experts encouraged teachers to use all the tools available in the LMS effectively to boost effective interactions with students. Moreover, teachers could create an interactive content that fosters interactions among students.

Generally, the study found that one of the strategies for encouraging teachers to participate in e-learning interaction with students was through attending workshops and professional training programmes. Training programmes were either short-term or long-term and were

conducted either locally or abroad. In terms of long-term programmes, teachers were sponsored to attend degree programmes in instructional design and multimedia production (E7, Appendix 1).

Student-to-content interaction

Most of the respondents reported that the quality of content that can foster interactions with students plays a significant role in the e-learning environment. Respondent E7, for example, remarked that the content should have features that attract learners to engage with it:

> The content will depend on the expertise for creating those contents. If the content has animations, for instance, or simulations that allow students to be involved in some practical ways, I think, it can help students get involved with it. Moreover, if the instructors will create some practical oriented activities or content that requires students to have some hands-on experience, yes, they will also foster the interaction of students with learning materials (Appendix 1).

This statement implies that, for effective student-to-content interactions to materialise, there must be a sense of a relationship between the content and the learner. The content developed, therefore, should promote a conversational environment with the learner:

> I think emphasis should be placed on good facilitators designing content that allow students to learn how to consume the content at their disposal. They learn how to create content for themselves in their activities and, therefore, cultivate a relationship between the student and the content (E1, Appendix 1).

In contrast, interviewee E6 asserted that an effective e-learning programme does not force learners to attend but rather attracts them to attend because of the value associated with the programme itself:

> One thing that is very important for some people is to advance that interaction has value. Why would somebody go 'e'? If that is addressed, people would be attracted. Let us take a simple example. Currently, we have these mobile money facilities, M-pesa, TIGO-pesa and the like. The problem here is not that people are forced to engage with M-pesa. No, it is because they see the value. So, if value is integrated in e-learning initiatives as well then, people will be attracted to use …If we don't put value in

> that we will just force people to use because we have powers (Appendix 1).
>
> *(NB: M-pesa: 'M' for mobile; 'Pesa' is a Kiswahili word for money: M-pesa and TIGO-pesa are Tanzanian mobile phone-based financial transaction services that allow users to deposit, withdraw, transfer and pay for goods/services.)*

The quality of the content and level of student interaction plays a significant role in the e-learning environment (Ally, 2008; Salmon, 2011). Results reported in Appendix 1 show that teachers in these institutions are encouraged to create content with animations or simulations that facilitate students' participation in a highly practical manner. During professional workshops, teachers were encouraged to develop content that couldcreate a conversational environment with the learners. This implies that, for an effective student-to-content interaction, a relationship between the content and the learner ought to be there. However, this is not only a requirement for the LMS that offers different tools but also for teachers as facilitators of learning to replicate it. In this regard, the study supports a suggestion byinterviewee E6 that an e-learning programme should be designed to attract learners due to its value associated with the programme itself. Value in terms of time, flexibility, accessibility, costs and achievements from e-learning programmes should constitute the basis for all e-learning interactive strategies so that many people can get attracted to using willingly rather than being forced to use e-learning tools.

Generally, the study findings reveal strategies that focus on equipping teachers with new roles in the e-learning environment through professional training and workshops as they are key stakeholders of education. To optimise benefits that can accrue fromthese interactions in e-learning environments, the roles of teachers need to change accordingly for necessary adjustments to be made with students following suit for meaningful and dynamic learning to materialise. Creating and maintaining a dynamic and user-friendly learning environment requires teachers to design and organise the learning experience before and during the operational process that encourages independent study among students and helps to build educational community (Anderson, 2008a).

Similarly, Garrison (2011) treats a teacher as a moderator of learning experiences in terms of "identifying a concept, provide the conceptual order, organise and guide learning activities, inject knowledge from

different sources and respond to technical problems" (p. 60). Nevertheless, teachers should not only rely on the two modes of interactions revealed from this study, but they should also devise and facilitate activities that can encourage all the aspects of interactions explained earlier to become a factor in the e-learning environment process. For example, the rapid development in mobile technologies has resulted in reducing education access by bringing learning from the lap to the palm top.The emergence of smart phones and their associated applications has accelerated learning interactions among users with different demographic characteristics and further reduced the digital divide. This can imply that, educators can unfold learning opportunities through smartphones which are available to almost every student in HLIs today resulting in promoting student-student interaction. Literatures have consistently show thatstudents learn through social interaction from their peers (Vygotsky, 1978).

This can also be possible where students can create online communities through mobile devices to access and share/exchangeeducational information using social media like Facebook, Twitter, Instagram and WhatsApp. A combination of learners with different abilities and talents is essential to enhance learning among peers and hence can promote leaners involvement in e-learning. Nevertheless, peer learning in social mediashould be used to complement other methods of learning to enhance students' understanding. Findings revealed by this study shows that there is limited emphasise from HLIs in promoting learning interactions through social media. Students are left alone to use social media and navigate un-educational activities. Through social media teacher-to-teacher, teacher-to-students as well as student-to-studentinteractions are possible through sharing of lecture notes, e-books, links to educational debases and also involved in educational discussion.

Regardless of the six different forms of e-learning interaction outlined earlier, a teacher's role can simply be summarised as facilitation of learning and assisting learners in producing new knowledge with a high degree of interactivity as well as participation for realising meaningful and educationally worthwhile learning outcomes (Salmon, 2011; Garrison, 2011) whereas, students should not only receive knowledge but should also act as explorers and seekers of knowledge (Brown, 2003). Indeed, the students' role should not be just to memorise or understand everything, but to have the capacity to identify appropriate information, evaluate it and effectively use it when and where it is needed (Anderson & Dron, 2011). In this regard, Mason (2011) asserts that an online

discussion forum is a popular interactive environment in e-learning that can increase students' participation and improve their critical thinking.

Conclusion

This paper aimed to shed light on strategies used to optimise teachers and students' involvement in e-learning in Tanzania's HLIs. Although data were gathered from the two HLIs, which demonstrate the use of e-learning in the country, it is nevertheless possible to draw one key important conclusion. It is evident that chats, forums, wiki and email constitute populartechniques that foster interactions amongst students, with teachers and with content. These are common tools available in many e-learning platforms. The question here remains: How effectively can they be used to optimise teacher-to-students and students-to-content interactions? Responses from e-learning experts indicate that teachers were encouraged to apply these tools through developing content that promotes a conversational environment with the learner. Therefore, to realise effective interactions, teachers should create content with animations or simulations that involve students in a highly practical manner. In some occasions, teachers ought to create practical-oriented activities to stimulate and enticestudentsto interact with the content. Thus, this study supports a suggestion by interviewee E6 to the effect that an e-learning programme should be designed to attract learners primarily because of its value associated with the programme. In this regard, value in terms of time, flexibility, accessibility, costs and achievements from e-learning programmes should be the basis of all e-learning interactive strategies so as to many peopleare motivated in using rather than being coerced into such application of e-learningplatforms. In line with this are the social media where the young generation are using them every day. Further research is needed to investigate how HLIs can get hold of leaners attention through social media by engaging them with learning materials and participate in discussion to enhance their understanding and thus promoting student-to-student as well as teacher-to-teacher interactions which were found to have limited attention.

Though this research was limited to two institutions, it has shed some light on the best practices currently being applied to enhance learning and teaching through e-platforms to add value to the teaching and learning process and complement the traditional face-to-face learning. Yet, for HLIs to gain maximum benefits from e-learning, they need to promote teachers' active involvement in e-learning and treat this as a matter of urgency not only in the planning phase, but also during the actual implementation of e-learning programmes.Consequently,"both

teachers and students have had to re-adapt the way they prepare, access and engage with educational matter" (Mwanza & Engestrom, 2005: 453).

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APPENDICES

Appendix 1: Some Extracts From Respondents

Respondent ID	Representative Quotations
Theme 1: Teacher-student interaction	
E1	"If you are a good facilitator you will use tools such as discussion forums to help students get involved with one another to create dialogue among students. So, I think the key aspect is having a good facilitator who can direct students to open up and talk amongst themselves. Moreover, a facilitator can use the tools in the system to communicate with the students, give them regular feedback...watch them as they discuss and intervene at some level, thus, creating interactions between students and the lecturer " *(Female, MSc, YoE: 7).*
E2	"Tutor on joining his course and wishes to send any message to students can do so using Moodle text. He just writes a message [and] all students with the registered phone on the system will receive the message, though they will not be able to reply...we don't want them to reply because we don't want the system to start accepting the jargon" *(Female, BSc, YoE: 3).*
E3	"In our learning platform ...we have a *chart* tool; *forum*, where an instructor can post something like a question or a discussion topic; the *announcement* [where] instructor can send an announcement [for example] *"there is an exam tomorrow at 11 am"*, or may be "let us meet tomorrow at this time online"…something like that [and] • emails. Now we have developed a system through which instructors can log-in and send sms directly to the students' mobile phones. So this is the most effective way we have found so far, because most students can be reached at any place and at any time" *(Male, BSc, YoE: 3).*
E4	"the only strategy we have started is with teachers because I believe teachers can influence students to use online materials and so on. Thus for most of the time, we are encouraging teachers to use all tools, for example, in the LMS. ... Also we are encouraging teachers to create an interactive content, which can encourage students to access "*(Male, BSc, YoE: 6).*
E5	"we are using Moodle, which contains tools that can be used for interaction between teachers and students, among students themselves and the content. Available tools are Wikis and other blogs which can enable interaction from teacher to students or from students to teachers. In addition, we have tele-education system, others are calling teleconferencing, which is used to conduct live lectures from India. This mode of learning is interactive as students can follow the lecture, ask questions and get answers during the session" *(Male, BSc, YoE: 8).*
E7	"The teacher must be involved to create an environment to allow students to get involved in the discussions and share material resources in various places. I think teachers should play a part to ensure that the materials provide all kinds of questions that foster interactions among students. Teachers can use tools such as Wiki and give an exercise that will require students from various points to contribute to the Wiki... But, also a forum, teachers can come up with a topic that require students to make their contributions and challenge each other, hence allowing students to participate and understand each other's' ideas and interact " *(Male, MSc, YoE: 10) .*

Theme 2: Student-content interaction	
E1	"Again I think emphasis should be that if you are a good facilitator, you can design content in such a way that students can learn how to consume the content that they have got. They learn how to create content for themselves in their activities and therefore create a relationship between the student and the content. But I think that it is necessitated a lot by obviously the system that offers different tools but also the lecturer who is a facilitator to replicate that ." *(Female, MSc, YoE: 7).*
E2	"Faculty-lead system: The system is designed in such way content is accessed after student has entered his faculty speciality. This choice will enable the student to get access to all material assigned to that log-in preferences. All slides and files saved in PDF format are accessible. Currently, we have developed few slides for trial in multimedia, so students can use both audio and video. In addition, we have added a clip for sign translation to accommodate those who cannot hear. So students can interact with the content depending on their subject specialization." *(Female, BSc, YoE: 3).*
E3	"Because everything is online, is in the learning platform. If they have internet connection and they have computers they get everything." *(Male, BSc, YoE: 3).*
E4	"For the students we are trying to train them and to take necessary tools within the system compared to those done outside. For example we are using gmail, yahoo, etc…So we are trying to educate them on these, and if they see that there are teachers who are using these tools they also do the same. So we start to tell teachers to use all tools, and also we are trying to tell students the importance of using those tools. At the end the interaction between teachers and students becomes available" *(Male, BSc, YoE: 6).*
E6	"… One thing that is very important for some people is to advance that interaction has value. Why would somebody go 'e'? If that is addressed, people would be attracted. Let us take a simple example. Currently, we have these mobile money facilities, M-pesa, TIGO-pesa and the like. The problem here is not that people are forced to engage with M-pesa. No, it is because they see the value. So, if value is integrated in e-learning initiatives as well then, people will be attracted to use …If we don't put value in that we will just force people to use because we have powers " *(Male, PhD, YoE: 16).*
E7	"The content will depend on the expertise for creating those contents. If the content has animations, for instance, or simulations that allow students to be involved in some practical ways, I think, it can help students get involved with it. Moreover, if the instructors will create some practical oriented activities or content that requires students to have some hands-on experience, yes, they will also foster the interaction of students with learning materials." *(Male, MSc, YoE: 10) .*

Key Note: *E1 to E7 represents e-learning experts 1 to 7 respectively.*