

Evaluating Blended Learning of a Systems Analysis and Design Course in an MBA class

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ABSTRACT

The blended learning approach for course delivery using the Moodle Learning Management System (LMS) is used for online course delivery at Makerere University Business School (MUBS). The study establishes learner views about e-learning and presents a blended learning approach with online assignment and discussion forum for a systems analysis and design course. The course was administered using the Moodle open source learning management system. Questionnaires were administered to a class of 39 students to conduct course evaluation after introducing students for the first time to e-learning. The evaluation results showed that students strongly recommended the e-learning approach for postgraduate studies with an acceptance rate of 80%. Students expressed a number of benefits from online classes, including: easy provision of lecture materials; ease of coursework administration; efficient and effective way of teaching; user friendly learning environment; cost-effective way of studying; useful interactive discussions; flexibility in learning; and a good avenue of learning computerized system. The students mentioned some challenges that should be addressed by institutions for effective e-learning to take place. These include: accessible Internet; availability of computer equipment and e-learning integration in other courses. Future research is needed to experiment with e-learning implementation in a large class of 200 students or more.

Keywords: *e-learning implementation: Moodle Learning Management System: Makerere University*

BACKGROUND

The COVID-19 pandemic has had numerous global consequences in all spheres of life. One of these consequences is seen in the education sector. According to UNESCO (2020), as of mid-April 2020, 1.5 billion children and youth were affected by school closures in 195 countries, from pre-primary to higher education. Burgess and Sievertsen (2020) argued that the global lockdown of education institutions will cause major (and likely unequal) interruption in students' learning as well as disruptions in internal assessments. A third of teachers are actively thinking of leaving the teaching profession within the next five years (Sweeney, 2020).

In Uganda, following fears that the congestion in schools would precipitate the spread of the COVID-19 pandemic, His Excellency, President Museveni ordered that all education institutions be temporarily closed effective March 20th 2020 at midday. This meant that there was no more physical interaction between the teacher and the learners except in a virtual eLearning environment. Closure of schools unexpectedly and for unknown duration makes teachers unsure about their obligations and how to maintain connections with students to support learning (UNESCO, 2020). The government through the Ministry of Education and Sports decided to provide lessons directly to the learners (primary and secondary schools) through radio, TV and printed materials. Though such measures play a part in ensuring continuity of education for all through remote learning, they are inadequate in creating unique learning experiences. Besides, only a very limited number of teachers continued to teach on radio and TV while thousands remained redundant. On the other side, a number of HEIs have some form of eLearning where lecturers put lecture notes on the

electronic platform. The majority, if not all the current students in HEIs in Uganda are digital natives with the capacity to own computing gadget(s) for eLearning purposes.

INTRODUCTION

E-learning is an approach that operationalizes learning using computer and communication technology, such as desktop computers, digital televisions, mobile phones, email, Internet, and collaborative software (Keengwe et al, 2014). E-learning is learner-centered in number of ways. It is designed with focus on the learner allowing for self-paced learning. The flexibility offered by online technologies supports the needs of diverse learners (Miller and Lu, 2003). E-learning is defined as technology-based learning in which learning materials are delivered electronically to remote learners via a computer network (Zang et al, 2004 and Clark & Mayer, 2016). E-learning comprises learning resources (contents), tools for implementation (systems), and execution processes (practices) that are implemented with flexibility of time and cost-effectiveness at the expense of inflexibility of traditional learning (Chen, 2003). Blended learning is a hybrid of traditional teaching and autonomous learning pedagogies (Buzzetto-More & Sweat-Guy, 2006). Blended learning combines text-based asynchronous online-learning with face-to-face approaches where the instructor implements two different contents of flexibility and inflexibility (Harding et al, 2005). The flexible content is easily handled by the course instructor based on the needs of students and the inflexible contents such as pre-recorded lecture notes are rigid. The popularity of eLearning is based on its ability to provide greater convenience, flexible time and self-paced learning to learners while saving costs of travel to physical institutions of learning. E-learning brings new opportunities by allowing people and organizations to keep up with the rapid changes that define the Internet world (Stokes, 2000).

The COVID-19 pandemic has disrupted the global education system affecting over 100 million students in universities and other tertiary educational institutions. Universities in Sub-Saharan Africa are faced with tough decisions of shifting to e-learning where mobile phones are the primary means of Internet access, characterized by poor and expensive data connections (AFP, 2020). In Uganda classes were on hold from March 19, 2020. A planned rollout of cyber teaching has been in vain after most universities struggled to set up online programmes. One observable positive impact is that students and lecturers have developed positive attitude towards e-learning. Universities are now building staff capacity in online teaching through virtual training using Zoom software. E-Learning programme offered continuity in education during the lock-down period but still poor Internet connectivity in the country frustrated online content delivery to students and this is worse in rural areas.

There are a number of challenges Universities have experienced in implementing learning management systems. These include: Internet accessibility and knowledge gap between learning management system stakeholders; high ICT-illiteracy rates and lack of confidence in using ICT solutions; learning management system selection and usability issues; ineffective maintenance and inefficient user support strategies; and high expectations with poor marketing strategies (Ssekakubo et al, 2011). Other researchers have also highlighted challenges experienced by students when implementing blended learning approach for course delivery in higher education institutions of Uganda as follows: lack of time; lack of knowledge and skills to use the blended learning management system; lack of technical support for students; and slow Internet and inconsistent power supply (Kajumbula & Tibaingana, 2009; Bbuye, 2005; and Nambale, M. G, 2014). Open and distance learning education presents a good opportunity to increase access to education in Uganda, but the will of the people, their skills capacity and policies to operationalize this mode of education are yet to be developed before any achievement can be made (Muyinda et al, 2018). Uganda needs to immediately modernize higher education including rehabilitation and growth in the face of changing needs and technologies. Ultimately this involves reshaping higher

education to give it new life and a new relevance, including transforming institutions to meet changing social needs (Mukwanason, 2017).

In this research we investigated factors influencing e-learning acceptance in a University from students' perspective, to establish how learning technologies address problems of distance learning education of graduate students in a resource-poor settings.

RESEARCH OBJECTIVE

The primary objective of this research was to ascertain the effectiveness of using e-learning for course delivery in a postgraduate class by using blended approach of learning which involved normal classroom lectures and online coursework administration.

The research questions are shown below.

RESEARCH QUESTIONS

- 1) How easy do graduate students find the Moodle learning management system when taking online lessons, assignments and discussions?
- 2) How useful is the Moodle learning Management System for delivering online lessons to graduate students?
- 3) What attitudes do graduate students develop towards online lessons after using the Moodle learning management system?
- 4) What intentions do graduate students express in regard to the use of the Moodle learning management system for future online lessons?
- 5) What are the benefits, challenges and opportunities of online education to students and institutions in a resource-poor setting?

The study examined how the perceived usefulness of the learning management system affects the behavioral intention of the graduate students to use the system in the future. In addition to this, the study also establishes how attitudes developed by the graduate students influence their intention to use the system in the future. A case used for the study is presented in the next section.

Case Study

E-Learning course design for MBA course

The author configured the Moodle learning management system to provide an online platform for teaching a systems analysis and design course to a group of 39 students in the MBA programme. The Moodle learning environment is quite easy to configure, and students learn to use it within a short time without having many difficulties. This e-learning platform supported students in a number of ways including: flexibility in submission of assignments, knowledge sharing through discussion forum, accessing the learning material from online at any time and seeking advice from the course instructor and class members at any time. The course was Systems Analysis and Design. The course ran for 6 weeks. The students downloaded all the course material from the e-learning platform, all the assignments were done online either through discussion forum or individual submissions, assignment marks and grades were checked by individual students online, and individual students received messages for new postings of course materials and coursework marks through emails. The students took an off line examination at the end of the semester. This end of semester examination accounted for 60% of the overall assessment. Questionnaires were administered to evaluate the Moodle environment students used for assignments and online discussions.

The topics of the course and sample questions for the coursework are shown in Table 1 below.

Table 1: Course Content and Sample Coursework

Course content		Sample coursework
Systems Analysis and Design topics		Assignment questions
1	Introduction to systems Analysis and Design	Why is it important for a company manager to be knowledgeable in systems development or computerization process when designing and developing software for his/her company? Explain technology leapfrogging. (Maximum use of 500 words) 1. Briefly explain user interface as one of the components of a computer system (2 marks). 2. What are the guidelines for user interface design in systems development work (5 marks). 3. Describe with examples four input and four output design guidelines for an information system (9 marks) Reference your work well, use not more than 450 words
2	Software development life cycle	
3	Software requirements	
4	Software development methodologies	
5	Requirements discovery	
6	Process modeling	
7	Database design	
8	User Interface design	
9	Information systems security	

LITERATURE REVIEW

E-learning and constructivism

Constructivism is an educational theory that involves hands-on, activity-based teaching and learning in which learners develop their own frames of thought. The constructivist approach enables learners to exhibit their knowledge through demonstrations. Through interaction with the learning materials, a learner is able to develop a level of deeper understanding that a lecture alone may not provide (Keengwe et al, 2014). Constructivist pedagogy conceptualizes learning as an active and manipulative activity with encouragement of constructive and reflective thinking that intentionally creates collaboration and a conversational atmosphere (Brooks & Brooks, 2001). Constructivist pedagogy enables quality interactions among learners and course facilitator. In modern technology-rich lecture rooms, there is a need for teachers to move from teacher-centered lecture approaches to constructivist approaches which are learner-centered (Jonassen, 2000).

Jonassen (1991) described constructivism in the context of a paradigm of learning that assumes learning as a process in which individuals 'construct' meaning or new knowledge based on their prior knowledge and experience. According to Mikre, (2011), educators call constructivism as the emerging pedagogy to the long existing behaviourism view of learning. The traditional learning approach transmits knowledge to students and the teacher has the sole responsibility, while in the constructivist approach, learning is authentic and learner-centred using ICT, (Voogt, 2003). Kelsey (2007) adds that in constructivism, students are active in the learning environment, they develop social and interpersonal skills, they enjoy their learning, they understand what is being taught and they learn to think in an efficient way.

Guidelines for effective e-learning practices

The U.S. Department of Education (2006) evaluation report indicated that school improvement programmes that incorporate different forms of technology yield positive results for students and teachers. However, many educators are still faced with challenges of facilitating constructivist pedagogy in e-learning environments (Keengwe et al, 2014).

a. **Learner-centered design.** Assessment should be aligned with learning outcomes of the course. There is need to plan creative instructional assignments. Assigned activities should intellectually stimulate students' minds while avoiding confusion or overwhelming them (Sorden, 2005). The design should provide an environment for exchanging and organizing ideas that support active and collaborative learning (Harasim, 2000).

b. **Effective e-learning environments.** Downes (2005) acknowledges three recommendations for effective e-learning: interaction, usability and relevance. E-learning creates an environment for greater student interaction, and greater student/instructor contact. The user interface should be easy to use and consistent for a given course.

State-of-practice of e-learning implementation in selected Universities

- *Makerere University:* In Makerere University three different learning management systems were implemented over a period of 15 years (Ssekakubo et al, 2011). The first LMS was Blackboard which achieved educational content upload by teaching staff after the staff underwent some training. This contribution was very limited. Later the University moved from Blackboard to Kewl because the sustainability of Blackboard was not easy since it was proprietary software system introduced with donor support. Kewl is open source and the University used it for two years with limited success. The third move was to the Moodle LMS which was branded as MUELE (Makerere University e-Learning Environment).
- *University of Nairobi:* The University of Nairobi had used three learning management systems up to 2013 (Ssekakubo et al, 2011). These were: Wedusoft developed by a member of staff at the University; Chisimba was later adopted and implemented in collaboration with the development partners; and the third LMS adopted was Claroline.

E-learning challenges and opportunities

Unwin et al. (2010) highlighted many cases of over-hyped and ill-planned e-learning initiatives in Africa and list many reasons for the failures, such as a lack of knowledge about LMSs from the educators who are implementing them. Indeed, an increasing body of literature shows students learn best when they are actively engaged with the curriculum and content (Kinuthia, 2009). There are several challenges faced by developing countries, such as poor infrastructure; lack of teachers and learning material; poorly prepared students; high cost of Internet (Olson et al, 2011). The limitations are the poverty and unaffordability of ICT infrastructure, lack of trained staff and lack of policies. Nurul et al, (2015) presented learning styles and cultural challenges as issues facing e-learning. Sywelem et al, (2012) stated that students who learn using their own learning style and taking into consideration their cultural aspects usually perform better academically.

Role of ICT in Education

- a) **Skills development:** The ICT is playing a role of skills development in developing countries (ICTs for Higher Education, 2005), since developing countries lack the skill sets to teach students with new technologies. So, there is a need to train the teachers of developing countries to provide quality education (Olson et al, 2011). ICT is playing a major role in building the capable work force.
- b) **Supporting social aspects of learning:** ICT plays a major role in promotion of collaboration between students of different areas.

- c) **Addressing the shortage of learning material:** Usually in developing countries students don't have access to all the text books. ICT plays a major role in providing learning material in the form of e-books and web pages, that can be read on e-readers and on smart phones. Students can also learn interactively through games and quizzes (Olson et al, 2011).
- d) **Improves the quality of education:** Technologies have an important role at the secondary and vocational level and in technical education to help the young people to build work-market-relevant knowledge and skills. Technology is said to play a dual role, because it's an enabling tool but also a subject (USAID, 2011). A concrete solution to this kind of situation would be a donation of internationally used accounting programs to a vocational school (Olson et al, 2011)
- e) Desai, (2010) presents **ICT as a change agent** in the way of learning from conventional teacher-centered learning to a more student-centered learning.
- f) Oroma, Wanga & Ngumbuke, (2012) present **digital recording** as a major role of ICT in education. Using tools and devices including digital video camera, webcams, headphones and microphones that enhance recording and storage of digital information for audio/visual learning for future use, information can be distributed to learners in very remote locations.

THEORETICAL FRAMEWORK

Technology Acceptance Model

The theoretical framework used for quantitative data analysis is the Technology Acceptance Model. Theoretical constructs were developed as questionnaire items and analyzed using descriptive statistics. The latent variables under investigation were Perceived Usefulness (U), Perceived Ease of Use (P), Attitude (A) and Behavioral Intention (BI) (Davis, Bagozzi & Warshaw, 1989).

Perceived usefulness

Perceived usefulness (PU) – This was defined by Fred Davis in terms of the degree to which a person believes that using a particular system would enhance his or her job performance (Davis, 1989). Acceptance of e-learning by students is an essential factor in the use of e-learning for studies. Special training was provided for this class in order to prepare them to use e-learning in the course. The perspectives and attitudes of students were explored in several studies. Masrom (2007) and Leem and Lim (2007) acknowledged that perceived usefulness is one of the essential factors that can impact the level of e-learning participation. Perceived usefulness is also influenced by the teaching material, convenience of course delivery and the course content. Perceived usefulness is an indicator of an individual's intention to make use of e-learning.

Perceived usefulness and perceived ease of use are the predictors of behavioral intentions (Davis, et. al, 1989). These two affect user's attitudes towards using e-learning systems. User's continuance to use e-learning systems is also influenced by their satisfaction from the system and this is measured by the perceived usefulness.

Perceived ease-of-use

Davis defined Perceived ease-of-use (PEOU) in terms of the degree to which a person believes that using a particular system would be free from effort (Davis 1989). Previous research results indicate that perceived ease of use positively and significantly affects attitude towards intention and perceived usefulness to use e-learning systems (Cheng, 2011), (Davis, et. al., 1989), (Hassanzadeh, et. al, 2012).

Attitude and Behavioral Intention

In the early research, Fishbein (1967) demonstrated the relationship between intention and behavior by establishing relationship links between beliefs, attitudes, intentions and behavior. Behavior is driven by the behavioral intentions, which is one of the individual attributes and subjective norms of the behavior in question (Davis et al, 1989). Ajzen & Fishbein (1975) acknowledged that attitude is an individual's positive or negative feelings about performing the target behavior. The same authors also acknowledged that subjective norm is the person's perception that most people who are important to him/her think he/she should or should not perform the behavior in question. The Technology Acceptance Model originated from the theory of reasoned action by Fishbein & Ajzen (1980) which ascertained that intention is the main determinant of an individual's behavior, whereas intention to behave is determined by subjective norms and the person's attitude towards the behavior.

RESEARCH METHODOLOGY

The study used a descriptive survey methodology. The study was conducted at the faculty of graduate studies and research at Makerere University Business School.

Types and sources of data

Primary sources of data

Primary data were captured using questionnaires that had both closed and open-ended questions.

Secondary data

Secondary data were obtained from the Internet. The data included for this research were from state of practice-of-e-learning in Ugandan universities and e-learning practices from other universities in developing countries.

Data analysis

The quantitative data were analyzed using SPSS version 21 and the responses were categorized based on the research questions. Descriptive statistics used for analysis included: frequencies, percentages and statistical means. The results were presented in the form of tables. Content analysis was done to extract data and process information for the responses captured from the open-ended questions on the questionnaire. The results were presented thematically based on the research objectives.

Population of study: The study population was a modular MBA class of 39 students

Sample size: The population size is not big. The sample size was 39. All the MBA students participated in the research

Research Instrument

We designed a questionnaire on a five-point Likert scale (1 indicating an extremely negative rating and 5 an extremely positive rating) to gather responses related to the items defined in Table 1. Cronbach alpha was computed for each construct to identify whether the items belonged together within a construct. There are a number of opinions on acceptable levels of Cronbach alpha. For example, an alpha of 0.80 or higher may be considered, or a value of 0.7 or higher is also most commonly considered. For our research we expected the values of Cronbach alphas to be well above 0.70.

FINDINGS

The presentation of results starts with demographic characteristics. This is followed by presentation of results from the quantitative and qualitative data.

Demographic characteristics

Table 2: Gender of Respondents

Gender	Frequency	Percentage
Male	24	61.4
Female	15	3.5

Table 3: Age of Respondents

Age in years	Frequency	Percentage
20 - 30	14	35.9
31 - 40	21	53.8
41 - 50	4	10.3

RESULTS FROM QUANTITATIVE DATA

Questionnaires were used to collect data from students related to their experience with the Moodle learning management system. The questionnaires included closed-ended questions designed on a five-point Likert scale where 1 indicates complete (strong) disagreement to the statement and 5 shows complete agreement to a given statement. Three open-ended questions were also included in the same questionnaire. 39 questionnaires were filled and collected. Cronbach's alpha coefficient, calculated statistically depending on the variance of each item, was found to be 0.82.

As shown in Table 4 below, the mean value of the 15-item form is 4.42, which indicates acceptance of Moodle for teaching Systems Analysis and Design to the MBA class. The highest scores in the form were received by the following items: "I find it easy to download lecture handouts from Moodle (4.49)"; "I find Moodle easy to use (4.54)"; "I find it easy to do assignments using Moodle (4.49)"; "Using Moodle increases my effectiveness in the course (4.47)"; "I will use Moodle in the future (4.40)"; "Using Moodle would improve my skills in e-learning (4.51)"; "It is easy for me to build my skills using Moodle (4.56)"; "Moodle makes learning more interesting (4.51)"; "I find Moodle useful in my studies"; and "Learning with Moodle is innovative approach to learning (4.56)".

From the above findings we affirm that:

- The students found it easy to learn and use Moodle for downloading lecture notes and answering questions in assignments
- The students built their skills in e-learning at a faster rate using Moodle and it enabled them to accomplish class tasks easily
- The Moodle e-learning environment offered new insight into the learning process and students appreciated using this platform again in the future courses they take.

Table 4: Questionnaire result sheet

DATA COLLECTION FORM												
No	Item	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		Mean
		F	%	F	%	F	%	F	%	F	%	
Perceived ease of use												
1	Learning to use Moodle is easy for me	0	0	0	0	3	7.7	15	38.5	21	53.8	4.46
2	I find it easy to download lecture handouts from Moodle	0	0	1	2.6	2	5.1	13	33.3	23	59.0	4.49
3	I find Moodle easy to use	0	0	0	0	2	5.1	14	35.9	23	59.0	4.54
4	I find it easy to do assignments using Moodle	0	0	1	2.6	1	2.6	15	38.5	22	52.6	4.49
5	It is easy for me to build my skills in using Moodle	0	0	0	0	2	5.1	13	33.3	24	61.5	4.56

Perceived Usefulness												
No	Item	F	%	F	%	F	%	F	%	F	%	Mean
1	Using Moodle would improve my skills in e-learning	0	0	0	0	1	2.6	17	43.6	21	53.8	4.51
2	Using Moodle during my postgraduate studies would enable me to accomplish tasks quickly	0	0	1	2.6	2	5.1	16	41	20	51.3	4.41
3	I find Moodle useful in my studies	0	0	1	2.6	1	2.6	13	33.3	24	61.5	4.54
4	Using Moodle increases my effectiveness in the course	0	0	1	2.6	1	2.6	19	48.7	18	46.2	4.38

Attitude Towards MOODLE use												
No	Item	F	%	F	%	F	%	F	%	F	%	Mean
1	I look forward to those aspects of my course that require me to use Moodle	0	0	0	0	5	12.8	16	41	18	46.2	4.33
2	Moodle makes learning more interesting	0	0	0	0	3	7.7	13	33.3	23	59	4.51
3	Learning with Moodle is innovative approach to learning	0	0	0	0	2	5.1	13	33.3	24	61.5	4.56

Intention to use												
No	Item	F	%	F	%	F	%	F	%	F	%	Mean
1	I will use Moodle in the future	0	0	1	2.6	3	7.7	16	41	19	48.7	4.36
2	I will continue to use Moodle in the other course units	0	0	1	2.6	7	17.9	20	51.3	11	28.2	4.05
3	I plan to use Moodle in my own classes	0	0	2	5.1	5	12.8	19	48.7	13	33.3	4.10
Total												

RESULTS FROM QUALITATIVE DATA

In this section, we present results from analyzed qualitative data. The students were asked to express the benefits of using e-learning systems for studies. They responded with a number of opinions which are summarized according to the themes presented below:

Benefits of using the e-learning platform in the systems analysis and design course

- 1) *Easy provision of lecture materials:* The handouts are easily accessed whenever there is need to read even without printing. E-learning enables timely receiving of information and it encourages reading as the materials are readily available.
- 2) *Easy coursework administration:* E-learning makes coursework submission easy. It is cost effective as it eliminates printing, binding or travelling to submit hard copy of the coursework. Work can be edited easily to suit the requirements of the instructor and the instructor gives prompt feedback. Moodle saves time as students do not look for a lecturer for coursework submission and the coursework is provided in a timely way requiring tight deadlines; this sets a good discipline and an enhancement to the writing skills due to set number of words.
- 3) *Efficient and effective way of learning and teaching:* E-learning speeds up learning and is very convenient and more flexible as it does not require much time. It brings opportunity to do online research and to develop computer skills.
- 4) *User friendly:* E-learning environment is easy to use even with little IT knowledge and skills. It is user friendly and saves printing costs. Access is just logging into the system. It has an option for editing work in Microsoft Word before final submission of the coursework.
- 5) *Cost-effective:* E-learning is cost effective as it does not require printing, binding and photocopying. E-learning is cheap and all that is needed is Internet access.
- 6) *Online interaction through discussions:* You are able to follow online discussions which save a lot of time. It is faster to link with the course instructor and classmates, especially on the discussion topics. Students contribute to online discussion. This is an engaging way of learning as it requires active participation of the student. You can ask for explanations in case you are not well versed with the subject.
- 7) *Flexibility in learning:* E-learning is flexible as the learners can do coursework at any time and from anywhere. It makes learning easy.
- 8) *Good avenue to learn computerized system:* E-learning improves on the computer skills of the learners and the platform can be accessed by the working class at the places of work.
- 9) *No loss of coursework after submission:* Learning management system is accurate so you can't be worried about loss of coursework. Confidentiality is enabled since everyone uses a separate password. Unlike the general class email the work on the Moodle is there as and when you need it without being discarded by others.
- 10) *Accessible anywhere and anytime:* You can submit your work when you are in the field far away from the city. You are able to submit your coursework regardless of the location at a particular time.
- 11) *Good for resource sharing:* Students share Information and utilize online educational materials to complete assignments.
- 12) *Minimizes coursework cheating:* Copying other students' work is minimized
- 13) *Timely assignment submission and timely feedback from the lecturer:* The feedback by the lecturer is instant and the delays are avoided. Results, handouts, coursework are received in time. Instant awarding of marks motivates students to be active learners in the online environment.
- 14) *Good approach of using IT :* It increases IT usage as one keeps on logging in and out to check on updates. It promotes IT usage since at any time students check on updates from the learning management system.
- 15) *Easy to consult the lecturer online:* Learning management system makes it easy to consult the lecturer and this encourages interaction in the online class.

In the next section of analyzed qualitative data results, the students gave recommendation for the institution to consider for e-learning implementation. The following themes are expressions of the students opinions.

- 1) *User friendly for MBA study*: It is user friendly especially for busy programs like MBA. Handouts given by the lecturer are posted on every students profile and therefore accessed by everybody in the class. Many students are working so they could easily do assignments at places of work.
- 2) *Cost-effective*: It is cost effective compared to photocopies of handouts. It is cost effective to students and to the institution as it takes less time to access information.
- 3) *Improves on ICT skills*: It is practical and quick to use, making it relevant to managers and business administrators. It helps students to improve on computer skills. We live in an ICT world; people should get skills of using e-learning.
- 4) *E-learning system is available anywhere and anytime*: It is convenient to everybody irrespective of the geographical location.
- 5) *E-learning is recommended for other courses*: Other course instructors should also use e-learning environment to administer courses online.
- 6) *Innovation in education*: It is innovative and makes the University move with the growing world. It supports innovation and creativity especially in computer skills; it is a good innovation worth trying with online discussions between different participants. It gives the student an opportunity to cope up with global competition.
- 7) *Simplifies learning*: It makes work easy to accomplish and increases effectiveness in the course. It is a social learning and sharing hub.
- 8) *Improves on coursework administration*: E-learning is a faster way of learning. Lecturer gains knowledge about students' progress through constant evaluation of the students' work.
- 9) *Time saving*: It saves time and allows you to do work and submit from any place. It minimizes need for physical appearance in the lecture rooms.
- 10) *Interactive learning environment*: The interactive online environment for students and lecturers is good and the lecturer can be contacted any time in case a student needs assistance. It is interesting, interactive and yet educative when sharing knowledge in group discussions.
- 11) *A tool for expanding institution*: E-learning would enable the institution to expand without increasing the physical infrastructure.
- 12) *Promotes active learning*: E-learning increases student participation and encourages individual contributions. It enables good research and reduces on assignment copying.

The last part of the results of the qualitative data presents those problems students faced when using the e-learning system. Students' opinions are expressed in the following themes.

- 1) *Lack of ICT equipment*: It is expensive as one needs a laptop or a computer and a Modem.
- 2) *Time-consuming online discussions*: Some group members post lengthy articles in discussion forum which is not useful. Sometimes following up online discussions is hectic because one has to see everybody's comments before contributing one's own comment.
- 3) *Lack of Internet Access*: Where there is no Internet connection, accessibility becomes difficult. It was a problem due to poor wireless connectivity at the institution. Lack of Internet access in some parts of the country makes e-learning challenging.
- 4) *Need for ICT literacy*: e-learning needs basic ICT skills. People without the required computer skills cannot take online courses.
- 5) *No problem*: Five students expressed that they did not find any problem with the e-learning platform they used for the first time to study the systems analysis and design course.
- 6) *Slow Internet*: Internet is slow and connectivity is limited and sometimes it takes long to download handouts.

- 7) *Lack of power/electricity*: It is problematic when there is no power. You need power to access the platform and use Internet
- 8) *Strict assignment rules*: Sometimes the word limit restricts useful information presentation. It has strict rules on the deadline. Once submission is made there is no more editing.
- 9) *Other courses not using e-learning*: It is a stand-alone programme, not adopted by lecturers in other courses.
- 10) *Delayed discussions*: Some students delay to respond to the discussion topics. Not engaging if group discussions are few.
- 11) *Expensive Internet payment*: Costly in some sense since it requires Internet.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Discussion

The study was carried out to investigate and evaluate an e-learning course in an MBA class. The e-learning approach to teaching and learning is beneficial in several ways. It enables learners to gain access to large amounts of useful content; provides teachers with an online environment to organize and structure their teaching materials; provides high quality resources from around the world and brings opportunities to developing countries to keep pace with learning technologies. University staff are more familiar with the teacher-centered model of course delivery, and in most cases course instructors and students have little or no knowledge about learning management systems (LMSs). Sometimes the institutions train their staff in learning management systems, however, the staff are not motivated to use the technologies for teaching. In the evaluation results we got from an MBA class after using the LMS for systems analysis and design course, the students highly recommend e-learning for studies for several reasons that included: flexibility in terms of time and place of study; easy coursework administration and access to quality lecture notes; timely coursework feedback and coursework security. The students strongly recommend e-learning for expansion of the university without constructing physical infrastructure. Students also identified a number of problems that affect e-learning implementation, these were: lack of ICT equipment and poor and no Internet connectivity. This is in line with researchers Kajumbula & Tibaingana (2009), (Bbuye, 2005), and Nambale, M. G, (2014), who acknowledged several problems experienced by students in e-learning classes which included: lack of time; lack of knowledge and skills to use the blended learning management system; lack of technical support for students; and slow Internet and inconsistent power supply. Students further recommended that the University should adopt the e-learning approach for delivery of all courses taught at the graduate school. The evaluation component of the course implementation programme is important as it contributes to e-learning improvement in the institution.

The quantitative analysis results indicate that students appreciate the e-learning approach to course delivery. They expressed ease of use of the learning management system and ease of doing online assignments as compared to traditional coursework hard copy reports. The students also appreciated the use of Moodle as an innovation in teaching and learning. In general, the class developed a positive attitude to using e-learning for future classes. Students expressed a number of benefits from online classes and these included: easy provision of lecture materials; ease of coursework administration; efficient and effective way of teaching; user friendly learning environment; cost-effective way of studying; useful interactive discussions; flexibility in learning; good avenue of learning computerized system; retention of coursework after submission; ease of access; course material sharing; assurance of coursework integrity; timely coursework feedback; good approach of using ICT; and ease of consulting the course instructor.

Students also expressed challenges they experienced in the online course. These included: lack of ICT equipment for online classes; time-consuming discussions; poor Internet speed; unreliable electricity; strict assignment rules and expensive Internet payment.

Conclusion

The study results indicate that when universities explore the full potential of online education, there are many benefits they get to transform the education system. Students in this research expressed usefulness of the Moodle learning management system in terms of its functional features that are easy to use when uploading assignment reports, downloading course materials and participating in the discussion forum. Most of the students in the class were workers in the public or private sectors. They expressed that online learning was flexible to them and sometimes they would do assignments during their free time when they were working in fields. The students were enthusiastic to use e-learning in future classes.

Recommendations

- 1) Universities and other higher educational institutions should promote e-learning for postgraduate education to give opportunity for the working class to enroll and study online.
- 2) Universities should invest in e-learning and use it as a tool for national and international expansion by attracting online students from all parts of the country and beyond the geographical boundaries. The COVID-19 pandemic has changed educational systems in Africa from the traditional lecture centered approach to e-learning pedagogy.
- 3) Institutions should promote e-learning by training staff in e-learning pedagogy to empower them with skills for online teaching.
- 4) Investment in ICT is an essential part of e-learning implementation in institutions. The required computer hardware, software and networking equipment should be made available.
- 5) There should be e-learning awareness creation in the public so that students and the general public get to know the opportunity presented by e-learning for studies.
- 6) The institutional leadership should plan for e-learning at the strategic level and provide the necessary resources that include finances, time, space, infrastructure and equipment.

FUTURE RESEARCH

- 1) This research was done in a class of 39 postgraduate students. The future research should consider a class of about 200 students and establish the effectiveness of administering online lessons in such a class.
- 2) This research investigated e-learning in blended learning settings where normal lectures were conducted in class and assignments with course materials were administered online. The future research should explore virtual learning (assignments, extraction and teaching) for delivery of a course and real-time examination in a postgraduate class.

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