An empirical study on e-learning uptake by teaching staff at Makerere University Business School

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ABSTRACT

The introduction of practical e-learning pedagogy to university teaching staff brings new opportunities for teaching and learning. Most teaching staff have not been exposed to use of a learning management system. The junior teaching staff at Makerere University Business School (MUBS) were trained to use e-learning tools with the Modular Object-oriented Dynamic Learning Management System (Moodle) as the platform for teaching. Moodle was selected for two reasons: it is open source and available for free download and it has good in-built pedagogical tools. The training course introduced new pedagogical tools that included online lessons, online assessment and collaborative tools in education (wiki, discussion forum). The participants evaluated the e-learning environment as the last activity in the course. The evaluation was done using questionnaires. The results indicate that the staff acquired good e-learning pedagogical skills at the end of the course. Further, results showed acceptance of e-learning by course instructors and usefulness of e-learning, with course instructors expressing their intention to use e-learning in teaching. The study shows that perceived usefulness influences behavioral intention more than perceived ease of use of the learning management system.

Keywords: *eLearning pedagogy uptake, Implementation, University teaching staff, Uganda*

INTRODUCTION

E-learning is the use of electronic technology to deliver, support and enhance teaching and learning (Olson, Codde and deMaagd, 2011). It includes the use of new multimedia technologies and the Internet to improve the quality of learning, by facilitating access to resources and services as well as remote exchanges and collaboration. Berhanu (2010) acknowledged that e-learning provides a potential and comparative ladder for developing countries to leapfrog to the knowledge economy.

The coronavirus pandemic emphasizes the need for education to be the first line of defense in crisis. More than 15 million children in Uganda are out of school as a result of the COVID-19 pandemic and there is urgent need for a sustainable solution for education in emergencies through a dedicated resource pool. The digital divide in Uganda proves the enormous inequality gap. The difficulty of accessing learning technologies and the level of digital literacy skills between privileged and the marginalized and vulnerable groups continues to widen the education gap. For the vast majority of learners living in rural Uganda, online learning cannot be imagined. The daily battles and struggles to access basic needs such as food, shelter and medical care means education is not a priority. As a nation, the current state of technology infrastructure and access in Uganda only allows for electronic measures to serve a few, only provide basic programs, and cannot be comprehensive or long-term solutions (Tumwesige, 2020). There is urgent need to develop digital literacies and education policies that promote and accelerate the move to online education at all levels. This will require all education and ICT stakeholders to support efforts in education transformation from the traditional teacher-centered learning approach, with very limited scope for the application of concepts to a more practical and interactive student-centered approach. The student-centered approach should be support critical thinking, creativity, and lend itself to an

interactive and collaborative approach to e-learning (Tumwesige, 2020). The need for development of pedagogical skills in online education cannot be underestimated for university educators in the 21st century. Uganda is one of the African countries that has promoted e-learning in an attempt to improve on the quality of education (Farrel et al., 2007). At all levels of education and more so at university level, digital communication and educational technology drive institutions to adjust their administrative, academic and research settings to face the changes demanded by the society, based on information and knowledge (Cazco, et al 2019). ICT integration in the classroom with the necessary digital skills has become an imperative for professional success at different levels of teaching and learning. There are many possibilities ICT brings to teaching as highlighted by Mena et al., (2018, pp. 1) as follows:

- Ubiquitous teaching
- More technical and computational knowledge skills
- Greater confidence and enthusiasm
- More flexible ways of teaching
- Paying personal attention to students' needs
- Encouraging continuous and stronger interactions among participants
- New guidelines for pre-service teacher education programmes

McGill et al., (2015, pp. 2-3) also highlighted the following benefits ICT brings to students:

- More organized knowledge
- The ability to teach themselves what they need to know to perform the tasks successfully
- Interpersonal skills and personal attributes
- The adaptability and flexibility required to be ICT practitioners.

Yelland (2001) acknowledged that traditional educational environments do not seem to be suitable for preparing learners to function or be productive in the workplaces of the contemporary society. She also noted that schools that do not incorporate the use of new technologies in classrooms cannot claim to prepare students for life in the twenty-first century. The above argument is also presented by Grimus (2000) who emphasized that teaching ICT skills in primary schools prepares pupils to face future developments based on proper understanding. Bransford et al., (2000) also acknowledged that technology integration in learning provides important guidelines for uses of technology that can help students and teachers develop the competencies needed for the twenty-first century.

At present, the majority of lecturers have limited skills and experience in e-learning pedagogy. Pedagogically, lecturers are familiar with a teacher-centered model, which means that they are unfamiliar with the more student-centered model that is generally associated with e-learning. As Olson et al., (2011) acknowledged, there are successes when the programmes are centered on the teacher, includive of strong teacher training, professional development, mentorship, networking and support, which aids the integration of e-learning pedagogical approaches into classroom practice and curriculum. Students have little or no knowledge of learning management systems, as they are familiar with the teacher-centered model. Teaching using a student-centered model meets resistance and confusion from students. Conceptually, then, time is needed to teach students about different learning models. Indeed, an increasing body of literature shows students learn best when they are actively engaged with the curriculum and content Olson et al., (2011) .

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LITERATURE REVIEW

E-learning in Uganda

Implementation of e-learning is viewed as part of educational reform. For e-learning to be efficient and effective, a great deal of care and attention is needed in its implementation. Efficiency and effectiveness of an e-learning implementation project is important for such a project to succeed. Leadership, policy frameworks and support are factors for successful implementation. The National Planning Authority, Uganda Communications Commission (UCC) and the Ministry of ICT and National Guidance in Uganda are strong advocates and have a mandate to ensure that sector policies are developed to provide leadership for ICT applications. At the university level, policies that recognize the integration of e-learning in teaching and research activities have been developed (Farrell et al., 2007). The necessary technology Infrastructure which includes; high-speed access to networks and the Web, provision of appropriate classroom technologies, and student computing abilities is now being provided by some institutions in Uganda (Kahiigi, 2013). The confidence in skills and ability to use technology will contribute significantly towards the development of e-learning. The more expertise the users develop for usage of the Internet and computer systems, the more likely will be their acceptance to use e-learning and develop a positive attitude towards it.

There are still individuals in the country who are not aware of the use of information technologies in education (Lating, 2009). Many teachers are not familiar with the integration of ICT in their teaching process and they are still fearful about its adoption because of the perception that technology may replace them in classrooms. There is limited emphasis on content development and the pedagogical aspects of e-learning (Basaza, 2006). Successful and sustainable e-learning implementation strongly depends on management having a broad understanding of the technical, curricular, administrative, financial and social dimensions of e-learning (Kahiigi et al, 2008). One of the main contributors to slow adoption of e-learning in Makerere University is the lack of management support (Makerere University, 2012). Ouma (2019) reporting on the use of ICT by in-service teachers indicated that many teachers from rural remote areas could hardly use computers as they lacked the necessary knowledge and computer facilities. Surprisingly, several trainees preferred to handwrite their coursework when course instructors expected typewritten work.

Barriers to integration of ICT in education

Bingimlas (2009, pp. 242-243) identified the following barriers that undermine the integration of ICT in education:

- **Lack of teacher confidence:** This is a major barrier to the uptake of ICT by teachers in the classroom. Teachers with limited knowledge of ICT fear technology integration in teaching and learning.
- **Lack of teacher competence:** This is normally a result of a skills gap in use of ICTs in classrooms.
- **Resistance to change and negative attitudes:** Some teachers are quite conservative and like to stick to the old pedagogy based on a teacher-centered approach to transmitting knowledge to the students who are passive receivers.
- **School-level barriers:** This includes lack of time for teachers to use technology in classrooms; lack of effective training for upskilling teachers; lack of accessibility to ICT resources; and lack of technical support in case there is equipment break-down.

The state of ICT in education in developing countries

Often developing countries do not have access to the development infrastructure they would need, or if they are available, they are of poor quality. Local conditions are crucial and they should be understood and assimilated before any technological intervention is introduced. Nevertheless, educational technologies are recognized as crucial for improvements that enable all individuals to flourish in their economic, social, and political lives (USAID, 2011). The aim of improving education in Africa and other developing countries had until recently been overshadowed by programmes focusing on national economic and infrastructure development (Olso et al., 2011). Mutisya and Makokha (2016) acknowledge a number of e-learning challenges in Kenyan universities which include: lecturers' heavy workloads, poor Internet services, poor remuneration for developing e-learning modules, lack of protection for the developed e-modules, limited ICT skills, lack of incentives, lack of computers/laptops and inadequate computer laboratories.

Unwin et al. (2010), based on a survey in selected African countries established that technologies are still in the minority within the local education community, and most of the students and institutions are left behind, and when in use, educational technologies are only in their most basic form. Unwin et al., (2010, pp. 15) drew five important conclusions for Digital Management Learning Systems in Africa as follows:

1. the systems support use of Internet and email.
2. the lack of adequate infrastructures (electricity, ICT equipment, telecommunication services) that would allow for widespread use of educational technologies. In addition, access is limited by the high costs for Internet access.
3. most of the countries and their education system, at all levels, lack the necessary skills and knowledge to use ICTs in teaching and learning, as their level of training lag behind the required international level.
4. we can be worried by the lack of locally relevant produced content using ICTs. Most of them are produced elsewhere than in the recipient countries, especially for open source content, that are at the core of ICTs strategies. Nevertheless, the picture is not entirely negative
5. positive points in use of ICTs in education, similar to descriptions by Olson et al., (2011, pp 15): addressing shortage of teachers and learning materials and improving the quality of education by using ICTs. For Unwin, learners can access a vast amount of learning content, in a practical form, relevant to developing country contexts. Therefore, the rewards for learners are indeed significant. Educational Technologies are used as a means to rationalize teaching materials, and overall the way teachers work and communicate with their students.

Roles of ICT in education in a developing country context

Olson et al., (2011, pp 14-15) articulated the following roles played by ICT in education:

1) **Skills development:** ICT is playing a role for skills development in developing countries, as people in developing countries do not have enough of the skill sets needed to teach students with new technologies. So there is need to train the teachers in developing countries in order to provide quality education. ICT is playing a major role in building a capable work force. Technologies have an important role at the secondary and vocational level and in technical education, to help the young people to build relevant skills for the job market. By learning to use ICTs in the context of the fields they are going to work in the future gives them a big advantage and an opportunity to participate and contribute to the economic development of their societies. In this regard technonology is said to play a dual role, because it's an enabling tool but also a subject.

2) **Supporting social aspects of learning:** ICT is playing a major role in promotion of collaboration between students located in different areas. Students can discuss their ideas with other students which increase their ability for communication and presentation of their knowledge.

3) **Addressing the shortage of learning material:** In developing countries students do not have access to all the required text books. ICT is playing a major role in providing the learning materials in the form of e-books, online videos and web pages. These can be read on e-readers and on smart phones. Students also learn interactively through games and quizzes.

4) **Improving the quality of education:** ICT is playing a major role in improving the quality of education in developing countries. Through ICT, updated information and content is provided and new learning approaches are being adopted. ICT is providing the opportunity for student interaction and communication, which can lead to increases in critical thinking, problem-solving, creativity and communication skills among them.

RESEARCH METHODOLOGY

Theoretical framework

The research is based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model and extends it with Perceived Risk and System Expertise. The relationship between Behavioral Intention and Performance Expectancy, Effort Expectancy, Social Influence and Use Behavior is drawn from the UTAUT model. The Perceived Risk (PR) variable has been used by a number of researchers in e-services (Carter & Belanger, 2005). A number of studies have reported that perceived risk contributes to adoption-related behaviors (Featherman, et al., 2003). Effort Expectancy can affect the learner's perception of risk. Systems complexity complicates its adoption and use. System expertise of the user influences the behavioral intention to adopt the system. For this research, the system expertise is defined as perceived knowledge and practical ability to apply computer and e-learning knowledge.

Perceived usefulness

Perceived usefulness (PU) – This was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance", (Davis, 1989, pp. 320). Acceptance of e-learning by the junior staff is an essential factor in the use of e-learning pedagogy for course delivery. Special training was provided for this group of the university junior teaching staff in order to prepare them for e-learning implementation in the institution. The perspectives and attitudes of lecturers 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.

Intention to use e-learning

Perceived ease of use and perceived usefulness are the predictors of the behavioral intentions (Davis, et. al, 1989, pp. 993). The two affect user's attitude towards using the e-learning system. The continuing use of the e-learning system is also influenced by the user's satisfaction from the system and this is measured by the perceived usefulness.

Perceived ease-of-use

Perceived ease-of-use (PEOU) – Davis defined this as "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989, pp. 320). Previous research results indicate that e-learning has proved that perceived ease of use positively and significantly affects behavioral intention to use e-learning systems (Cheng, 2011, Davis et. al., 1989, Hassanzadeh, et. al, 2012)

Computer self-efficacy

Computer self-efficacy is referred to as an individual's ability to perform tasks using a computer system (Wu et al., 2010). Computer self-efficacy has been validated as the key determinant of computerized system acceptance and continued use. In the case of e-learning, empirical evidence shows that higher computer self-efficacy leads to increased confidence and motivation in an individual's attitude towards adoption and acceptance of use.

Subjective norm

Subjective norm or social influence refers to the perception that important people assume that one should use the system or not (van Raaij and Schepers, 2008). In an e-learning context learners believe that people who are important think they should use the e-learning system (Li et. al., 2012).

Perceived risk

Researchers identified perceived risk and trust as two important facets of decision making through which individuals view things and choose to act (D'Alessandr et. al., 2012 and Josang & Presti, 2004). In the context of e-learning the risk refers to system security, integrity of the learning environment in terms of assessment administration and access by authorized users.

The Research Model

The focus of the research seeks to establish the relationships between: Performance Expectancy and Behavioral Intention; Effort Expectancy and Behavioral Intention; Social Influence and Behavioral Intention; Perceived risk and behavioral Intention; and Perceived risk and Performance Expectancy. In this regard the study proposes to test the following hypotheses:

> H1: Performance Expectancy will have a significant influence on Behavioral Intention
> H2: Effort Expectancy will have a significant influence on Behavioral Intention
> H3: Social Influence will have a significant influence on Behavioral Intention
> H4: Effort Expectancy will have a significant effect on Performance Expectancy
> H5: System Expertise will have a significant effect on Effort Expectancy
> H6: Perceived risk will have a significant effect on Behavioral Intention.

The key research variables used in the investigation are shown in Figure 1 below.
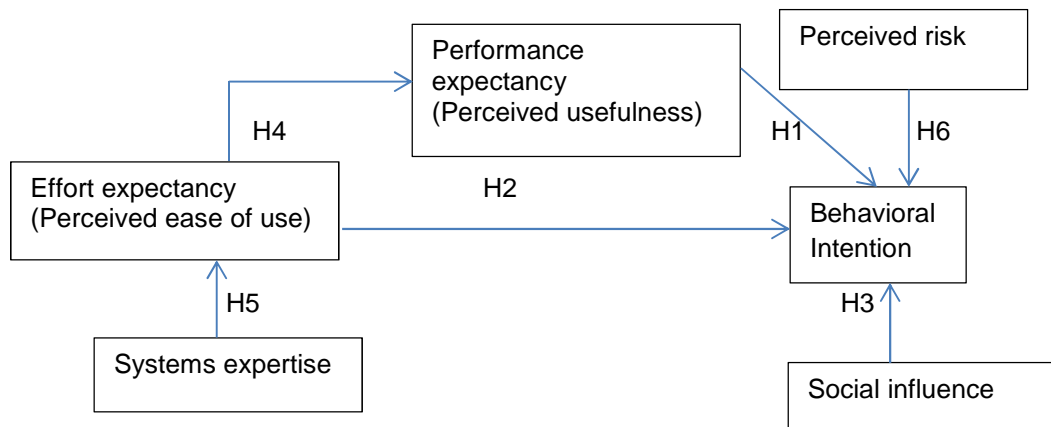
Figure 1: *The Research Model*

E-Learning intervention underpinning the research

The target group for this study was the junior teaching staff at the Makerere University Business School in the postgraduate diploma in business education. E-Learning was one of the course modules studied over a period of six weeks. The research tested factors that explain the perception of the participants about the use of e-learning pedagogy in a university. The e-learning environment used was Moodle.

Moodle is a very popular learning management system used by educators around the world as a tool for creating online courses for their students (Indzhov et. al., 2013). The benefits of using Moodle are articulated below:

- It runs on any web server which supports a PHP programming language and a variety of databases
- It has a simple installation approach and can be made available within short period of time.
- It has a user friendly interface in multiple languages.
- It offers a variety of course formats and assessment types
- Its scalability is easy and it supports a variety of deployments.

Figure 2: *The e-Learning interface*

The learners were assessed both online and off line. Figure 2 above illustrates the e-learning interface. The course structure, course objectives and course learning outcomes are shown in Table 1 below.

Table 1: Course structure, objectives and significance

Course name: eLearning   **Course content**   ■ Information and communication technology in education   ■ The psychology of digital learning environment   ■ Digital learning environment evaluation   ■ Practical in use of MOODLE learning management system
Course objectives   The objectives of the e-learning course are: ■ To introduce University teaching staffs to design principles of e-learning platforms.   ■ To train University teaching staff in new pedagogical tools for e-learning that include online lesson planning, setting online tests, wiki content development and use of online discussion forum.   ■ To train University teaching staff in using learning management system by taking online lessons, online assessment, discussion forum and wiki.   ■ To evaluate e-learning activities in order to develop guidelines for e-learning implementation in Universities.
Significance of learning management systems   ■ Enabling academic staff to gain access to large amounts of useful content (particularly distance learners who would otherwise not have access)   ■ Providing a new approach for lecturers to organize and structure their teaching materials   ■ Providing access to high-quality resources from around the world   ■ Allowing learners in Africa to keep pace with learning technologies, thereby ensuring that there is reduction in inequalities between developed and developing nations.
Course learning outcomes   The junior teaching staffs are expected to acquire the following skills: ■ New pedagogical skills in online teaching   ■ Ability to upload lessons, set online assignments and grade them   ■ Ability to hold and direct online discussions by the students   ■ Create online resources in courses of specializations for students to access any time   ■ Update learning materials with new course content

DATA COLLECTION AND ANALYSIS

The study used the quantitative method for data collection to determine correlations among factors that influence e-learning uptake by junior teaching staff at Makerere University Business School. Quantitative research is directed at analyzing the relationships and regularities that appear between selected factors (Merriam, 1998). This type of research generates measurable changes and produces data that is more generalizable than data from qualitative research (Cohen, Manion & Marrison, 2000). The data in the study was collected using questionnaires which were distributed to 63 staff members. The instrument was designed using a five-point Likert scale with (1) indicating

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an extremely negative rating and (5) an extremely positive rating, to gather responses from study participants. The first part of the questionnaire relates to the demographics of the teaching staff: respondents were asked three questions on age, gender and experience of Internet use. The second part of the questionnaire relates to the factors that influence e-learning uptake by junior teaching staff in the university. These factors are: perceived ease of use, perceived usefulness, behavior intent, perceived risk, social influence, and system expertise. 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, Nunnally (1967) proposes an alpha of 0.80 or higher, while Treacy (1985) suggests a value of 0.7 or higher. For our research the values of Cronbach alphas were above 0.60

The literature on e-learning was reviewed to establish the state of e-learning in Uganda and other developing countries. Literature review was also done with the intention of establishing measures of constructs applied by previous e-learning researchers.

Table 2: *Cronbach Alpha values*

Variable	Cronbach Alpha
Perceived ease of use	0.747
Perceived usefulness	0.752
Behavior intent	0.736
Perceived risk	0.699
Social Influence	0.661
System Expertise	0.606

The demographic profile of the respondents is shown in Table 3 below. Males and females were nearly equally represented among the respondents, but varied most by age and experience with use of the Internet.

Table 3: *Demographic information*

Demographic information of the sample		
Variables	Number (N)	Percent (%)
Gender		
Male	31	49.2
Female	32	50.8
Age (years)		
Less than 30 years	57	90.5
30 – 40	6	9.5
Internet Experience		
Less than 5 years	16	25.4
More than 5 years	47	74.6

Data Analysis with Mean Values

The descriptive data shown in Table 4 below, provides statistics in relation to the following 5-point Likert scale. 1 – Strongly disagree (SD), 2 – Disagree (D), 3 – Neutral (N), 4 – Agree (A) and 5 – Strongly agree (SA).

The responses of the teaching staff indicate that using the learning management system (Moodle) improved their e-learning skills (mean = 4.65) and it enabled them to accomplish tasks quickly (mean = 4.32). The staff also acknowledged that e-learning is an innovative approach to education (mean = 4.56). The staff strongly support the use of Moodle in their classes (mean = 4.56).

In regard to expertise in the use of computers, the majority of the staff indicated that they use computers for a variety of purposes (mean = 0.443). The responses also indicated that staff can independently accomplish computer based tasks without external support (mean = 0.403).

Table 4: Data analysis with scale mean values

No	Scales for measuring various Constructs	SD F	%	D F	%	N F	%	A F	%	SA F	%	Mean
Perceived Ease of Use												
1	Learning to use MOODLE is easy for me	2	3.2	3	4.8	9	14.3	31	49.2	18	28.6	3.95
2	I find it easy to download lecture handouts from MOODLE	2	3.2	2	3.2	7	11.1	30	47.6	22	34.9	4.08
3	I find MOODLE easy to use	2	3.2	3	4.8	8	12.7	35	55.6	15	23.8	3.92
4	I find it easy to do assignments using MOODLE	2	3.2	9	14.3	8	12.7	37	58.7	7	11.1	3.60
5	It is easy for me to build my skills in using MOODLE	2	3.2	4	6.3	6	9.5	35	55.6	16	25.4	3.94
Perceived Usefulness												
1	Using MOODLE would improve my skills in e-learning	1	1.6	1	1.6	0	0	15	23.8	46	73	4.65
2	Using MOODLE during my postgraduate studies would enable me to accomplish tasks quickly	1	1.6	3	4.8	2	3.2	26	41.3	31	49.2	4.32
3	I find MOODLE useful in my studies	0	0	1	1.6	5	7.9	22	34.9	35	55.6	4.44
4	Using MOODLE increases my effectiveness in the course	1	1.6	2	3.2	2	3.2	32	50.8	26	41.3	4.23
Behavior Intent												

1	I look forward to those aspects of my course that require me to use MOODLE	0	0	2	3.2	6	9.5	28	44.4	27	42.9	4.23
2	MOODLE makes teaching and learning more interesting	0	0	1	1.6	7	11.1	23	36.5	32	50.8	4.37
3	Teaching and Learning with MOODLE is innovative approach	0	0	1	1.6	3	4.8	19	30.2	40	63.5	4.56
4	I will use MOODLE in the future	1	1.6	0	0	2	3.2	20	31.7	40	63.5	4.56
5	I will continue to use MOODLE in the other course units	1	1.6	2	3.2	2	3.2	22	34.9	36	57.1	4.42
6	I plan to use MOODLE in my own classes	1	1.6	2	3.2	4	6.3	28	44.4	28	44.4	4.27
Perceived Risk												
1	When using MOODLE system I will lose privacy over my personal information	13	20.6	17	27	16	25.4	15	23.8	2	3.2	2.62
2	Using MOODLE will expose my personal data like profile and lecture content to other people to use without my permission	9	14.3	19	30.2	7	11.1	18	28.6	10	15.9	3.02
3	Using the MOODLE system will expose me to the hackers	8	12.7	16	25.4	18	28.6	16	25.4	5	7.9	2.90
4	MOODLE system does not have security strong enough to protect my account	9	14.3	15	23.8	17	27	19	30.2	3	4.8	2.87
5	MOODLE system may not perform well in examination and coursework administration	10	15.9	11	17.5	6	9.5	21	33.3	15	23.8	3.32
Social Influence												
1	People around me encourage me to use MOODLE	7	11.1	8	12.7	8	12.7	24	38.1	16	25.4	3.54
2	People around me think use of	3	4.8	13	20.6	11	17.5	23	36.5	13	20.6	3.48

	MOODLE is cost-effective										
3	People will make fun of me if I am not able to use MOODLE	9	14.3	12	19	6	9.5	21	33.3	15	23.8	3.33
System Expertise											
1	I use computer for variety of purposes	2	3.2	2	3.2	4	6.3	14	22.2	41	70.1	4.43
2	I often struggle to complete a task using computer for some reasons	16	25.4	16	25.4	3	4.8	12	19	16	25.4	2.94
3	I can complete a task using a computer if there is no one around to help me	5	7.9	3	4.8	3	4.8	23	36.5	28	44.4	4.06
4	I can use MOODLE effectively if I call someone to help me	1	1.6	9	14.3	6	9.5	25	39.7	22	34.9	3.92
5	I can use e-learning if instructions are provided to use MOODLE	4	6.3	4	6.3	4	6.3	26	41.3	25	39.7	4.02
6	A lot of technical knowledge is required to use MOODLE	1	1.6	9	14.3	8	12.7	23	36.5	22	34.9	3.89

FINDINGS

In seeking to establish the relationships between the variables, Pearson Correlation was used. The results shown in Table 5 below indicate:

1. A significant and positive relationship between perceived ease of use and perceived usefulness of e-learning (r = 0.44, p<0.01). These results show that the ease to use of e-learning platform improves on the performance of the staff in online course administration.
2. A significant and positive relationship between perceived ease of use of the e-learning system and the behavior intent of the participants (r = 0.610, p<0.01). These results show that the ease of using the e-learning platform motivates the staff to continue using the same platform in the future.
3. A significant and positive relationship between the perceived usefulness and the behavioral intention of the participants (r = 0.639, p<0.01). These results show that the value of e-learning realized from using the e-learning systems motivates participants to continue using the same system in the future.
4. A significant and positive relationship between the social influence and the behavioral intention (r = 0.333, p<0.01). T

These results show that there is a level of e-learning appreciation by the staff.

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Table 5: Pearson correlation coefficients

		1	2	3	4	5	6
1	Perceived ease of use	1					
2	Perceived usefulness	0.444**	1				
3	Behavior Intent	0.610**	0.639**	1			
4	Perceived Risk	0.031	0.075	0.074	1		
5	Social Influence	0.303*	0.322*	0.333**	-0.106	1	
6	System Expertise	0.260*	0.220	0.261*	0.446	0.026	1
** Correlation is significant at the 0.01 level (2-tailed)							
*Correlation is significant at the 0.05 level (2-tail)							

The results of the hypotheses testing are shown in Table 6 below. The results indicate the strongest positive influence observed for performance expectancy on behavioral intention, effort expectancy on behavioral intention, and effort expectancy on performance expectancy. The weakest but positive effect was observed for perceived risk on behavioral intention.

Table 6: Summary of results of hypotheses testing

Hypothesis	Result	Status
H1	There was strong positive correlation between Performance expectancy and Behavioral Intention, r = 0.639, n = 63, p < 0.001, implying that participants established MOODLE eLearning platform good for teaching and they are hopeful of using it for their courses.	Supported
H2	There was strong positive correlation between Effort expectancy and Behavioral Intention, r = 0.610, n= 63, p < 0.001, implying that eLearning software interface is good easy to use and provide good pedagogical tools and therefore promising for future use.	Supported
H3	There was moderate (average) correlation between Social Influence and Behavioral Intention, r = 0.333, n = 63, p < 0.001, implying that the positive support and encouragement from friends, relatives and workmates somehow influences the intentions of participants to use eLearning pedagogy in course delivery.	Supported
H4	There was strong positive correlation between Effort Expectancy and Performance Expectancy, r = 0.444, n= 63, p < 0.001, implying the user friendly nature of the eLearning management system established the platform as useful pedagogical tool for course delivery in Universities.	Supported
H5	There was moderate (average) correlation between System Expertise and Effort Expectancy, r = 0.260, n = 63, p < 0.001, implying that the ability of the participants to use a variety of computer systems enabled them to use eLearning management system.	Supported
H6	There was weak positive correlation between Perceived risk and Behavioral Intention, r = 0.074, n =	Not Supported

63, p > 0.001, implying that perceived system risk weakly influences the intention of the participants to use the system. This also implies trust they have in the system that influences them to put it to practical use.					

Regression analysis results are presented in Table 7 below. The results show that social influence, perceived risk, perceived ease of use and the perceived usefulness explain 50.5% of the variance in the Behavior Intention (Adjusted R square = 0.505). This regression model is significant (sig. < .05).

Table 7: *Regression analysis results*

Model	Unstandardized coefficients		Standardized coefficients		
		Std. error	Beta	t	Sig
(Constant)	7.311	2.554		2.862	.06
Social Influence	0.079	0.105	0.074	0.758	.451
Perceived Risk	0.038	0.075	0.046	0.506	.615
Perceived ease of use	0.352	0.092	0.389	3.825	.000
Perceived usefulness	0.617	0.146	0.433	4.215	.000
Dependent variable: Behavior Intent					
R	0.733				
R Square	0.537				
Adjusted R Square	0.505				
F Statistics	16.840				
Sig	0.000				

Source: Primary data

DISCUSSION, CONCLUSION AND RECOMMENDATION

Discussion

E-Learning is still at the initial stages of development in most institutions of higher learning in Uganda. This modern educational practice provides a new pedagogical approach that higher education is slow to adopt due to a number of reasons. The typical problems normally realized in e-learning implementation include: lack of e-learning skills; poor bandwidth and hence slow Internet speed; large class sizes which impact the effective administration of online classes; conservative culture among course instructors that demotivates them from participating in online classes; lack of policy for e-learning implementation; and lack of established and approved pedagogical approaches for online education. Many researchers have expressed concerns about the problems in developing countries which impact e-learning. These include: lack of support for use of digital technologies in education; lack of adequate infrastructure (electricity and telecommunications networks); lack of necessary skills and knowledge to use ICTs in teaching and learning; and lack of content that is relevant to the educational needs of the learners (Unwin et. al., 2010).

E-learning has continued to experience multiple challenges despite efforts by institutions to adopt learning management systems for teaching and learning. Some of the common issues faced by institutions in e-learning implementation include: poor uptake by institutions because of insufficient

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allocation of resources for e-learning activities; conservative teaching staff who are resistant to the paradigm shift in education; unprepared students who are the primary beneficiaries of e-learning systems; unstable learning management systems that cause distrust among e-learning stakeholders; lack of skills for packaging local content for online teaching; poor and expensive Internet for e-learning; lack of standards for implementation of e-learning (institutions set individual standards); and problems associated with online assessments which include the question of examination integrity and facilities for conducting such examinations in designated locations, nationally or internationally, apart from individual online examinations.

Despite the above challenges, e-learning has great potential to transform education systems in developing countries. Countries in sub-Saharan Africa have leapfrogged in the adoption of information and communication technology for service delivery in health education and in government. In this regard, e-learning is a powerful tool for delivery of education services to the remote rural communities of Africa. At present over 70% of Africa's population are digital natives who are enthusiastic about use of ICT services especially for e-learning. What countries need to do is to formalize e-learning by establishing standards for accreditation of online programmes and degrees for quality assurance purposes. When e-learning is properly implemented, it can address the problem of shortage of teachers

This study used a quantitative research approach to determine acceptance of e-learning by course instructors and the results indicate that e-learning is a very useful tool for teaching and learning with all the construct averages above 4.0 and the course instructors also expressed their intention to use e-learning in teaching.

The study shows that perceived usefulness influences behavioral intention more than perceived ease of use of the learning management system. This is in line with what the technology acceptance model postulated, that perceived usefulness has significant influence on students' intention to use technology (Davis, 1989).

Conclusion

From this study in a university setting, it was established that the teaching staff appreciate e-learning and articulate many benefits derived from the Moodle learning management system which include: easy download of lecture handouts; and improvement of skills in e-learning. However many challenges were experienced in the training activities for the implementation of e-learning. In particular, Internet speed was very poor and some learners were not motivated to train in the course. We highly recommend that an e-learning policy should be developed for effective administration of online courses in higher education. The policy should address fundamental issues in e-learning implementation which may include: comprehensive online education which goes beyond upload and download of lecture materials; investment in ICT infrastructure to promote e-learning; and consideration of an ICT-based paradigm shift from the traditional and predominant teacher-centered learning approach to a student-centered learning approach which facilitates creative knowledge construction among students.

Recommendations

The following recommendations are provided for consideration.

1) The university management should plan for e-learning at a strategic level by developing an e-learning policy for the institution to promote the growth of online teaching and learning.
2) It is important for every member of the teaching staff at the university or any higher educational institution to acquire formal skills in online teaching preferably before joining the teaching profession. Alternatively, in-service training should be done for skills update of the existing teaching staff.

3) Integrity in online teaching, learning and assessment should be assured by periodic monitoring of teaching and learning activities and conducting final assessment at the end of the course.
4) The university leadership should invest in online education by providing all the necessary resources for course administration. The resource list includes: sufficient Internet bandwidth, computers, course modules tailored to online teaching, and a stable open source or proprietary learning management system.
5) Teaching staff who engage in online teaching should get professional rewards during staff appraisal in order to motivate them, as most teaching staff are conservative and do not want to engage in online teaching.
6) An institution should use a stable learning management system that is available and reliable at all times so that course instructors and learners can access their course environment at their convenience.
7) Universities in developing economies should work in collaboration by creating e-learning ecosystems either nationally or regionally, for offering common courses especially to graduate students and this can be a good avenue for sharing human resource (experts) that may not be available in many of the academic disciplines.
8) The regulators of universities in developing economies should establish standards for online teaching and learning for accreditation of online degree programmes.

Future Research

This study was done at the Makerere University Business School (MUBS), and research is needed in the future to carry out another study in multiple institutions for generalization of the study results. There is also need to study how universities impart e-learning pedagogies to the teaching staff using the in-service training approach.

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