Adoption Determinants of E-learning Management System in Institutions of Higher Learning in Kenya: A Case of Selected Universities in Nairobi Metropolitan

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Abstract

Researchers in educational technology have researched for factors to explain problems that hinder acceptance of e-learning management systems in institutions of higher learning. Based on unified theory of acceptance and use of technology (UTAUT), the study examined the influence of performance expectancy, effort expectancy, social influence and facilitating condition on acceptance of E-learning Management System (EMS) in institutions of higher learning in Kenya. Descriptive research design and in particular cross-sectional design were employed in order to empirically investigate the extent to which problems influence adoption of E-learning Management System (EMS). A self-administered questionnaire, face-to-face interviews and observation were administered to a sample size of 600 that consisted of lecturers, students, administrators, and technical staff from at least five Universities within Nairobi Metropolitan. Analysis was done using descriptive as well as inferential statistics in order to draw inferences between the variables. The study found that use of EMS was a new technology as most of the respondents had an experience of less than 3 years. Also the study found that expected performance, enabling infrastructures, institutional policies, training support and leadership and ease of effort use influenced the adoption of EMS in institutions of higher learning.

Keywords:acceptance, behavioral intention, e-learning, System, and effort expectancy

1. Introduction

E-learning Management System (EMS) have become one of the most important innovations for delivering education in many parts of the world, this has been facilitated by a rapid expansion of information technologies globally. However, successful implementation and management of these systems is primarily based on its adoption (Duygu & Sevgi, 2013). There are various problems that are hindering success of this innovation adoption in institutions of higher education. According to (Elloumi, 2004), high cost of technology, poor decisions, competition, and the absence of a business strategy are some of barriers that affect adoption of EMS in many universities in developing countries. A significant number of Universities in Kenya are using E-learning management system as a platform to provide students with online learning. This enables students to obtain their education in parallel with pursing their personal goals and maintaining their own careers, without a need to attend classes and be subjected to a rigid schedule (Borstorff& Lowe, 2007). These initiatives are however being affected by many barriers that are threatening to bring down this technological innovation.

(Venkatesh et al., 2003) formulated a unified model after comparing and integrating elements across the eight models of technology acceptance, and empirically validating the unified model which reported that performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) as the key adoption determinants that influence EMS.

Many theoretical models and empirical studies that investigate factor that affect adoption or acceptance of EMS in institutions of higher learning in both developing and developed countries have supported UTAUT. It is against this theory that this inquiry sought to find out whether what have been reported by UTAUT really apply in institutions of higher education in Kenya.

This research study sought to investigate adoption determinants of e-learning Management systems (EMS) in institution of higher learning in Kenya.

1.1. Specifically, the study sought to

i. Investigate whether Performance expectancy (PE) influence behavioral intention to adopt e-learning management system (EMS) in institution of higher learning in Nairobi Metropolitan.
ii. Find out whether effort expectancy (EE) influences behavioral intention to adopt e-learning management system (EMS) in institution of higher learning in Nairobi Metropolitan.
iii. Examine whether social influence (SI) affluence behavioral intention to adopt e-learning management system (EMS) in institution of higher learning in Nairobi Metropolitan.
iv. Determine whether facilitating conditions (FC) influence adoption of e-learning management system (EMS) in institution of higher learning in Nairobi Metropolitan.

2. Literature Review

2.1. Theoretical Literature

A recent trend in higher education has been to set up e-learning Management systems (EMS) that provide students with online access and learning content. What drive this trend are changes in student's demographic factors in educational delivery market conditions, and in innovation technology itself (Concannon, Flynn, & Campbell, 2005). However, there are many barriers that affect integration of E-learning Management System (EMS) into higher education, such as infrastructure, faculty effort, technology satisfaction, and graduates competency. Other factors that are believed to influence adoption of EMS as identified by (Elloumi, 2004) are high cost of technology, poor decisions, competition, and the absence of a business strategy.

Models or theories have been developed in the past to try to unearth constructs that could be influencing EMS adoption such as: Technology Acceptance Model (TAM); Theory of Reasoned Action (TRA); Motivational Model; Theory of Planned Behavior (TPB); a model combining TAM and TPB; Model of Personal Computer Utilization (MPCU); Innovation Diffusion Theory (IDT) and Social Cognitive Theory as outlined by (Venkatesh V. , Morris, Davis, & Davis, 2008) and many more.

These models of accepting technology have their foundations in the theory of social psychology developed by (Fishbein&Ajzen, 1975) as Theory of Reasoned Action (TRA), which point out the two key factors influencing the behavioral intent as attitude towards behavior and subjective norm. Later (Ajzen, 1991) added the factor of perceived behavioral control to the factors attitude toward behavior and subjective norm, which stems from the self-efficacy theory and is a condition for change in behavior. Another Theory of technology acceptance is Technology Acceptance Model (TAM) developed by (Davis, 1989), according to which the user's attitude towards technology is mainly influenced by perceived usefulness, attitude and perceived ease of use. In his proposal, (Davis, 1989) suggested that user's motivation can be explained by three factors: perceived ease of use, perceived usefulness, and attitude towards the system. He hypothesized that the attitude of the user towards a system was a major determinant of whether the user will actually use or reject the system. The attitude of the user is in turn believed to be influenced by two major beliefs: perceived usefulness and perceived ease of use, with perceived ease of use having a direct influence on perceived usefulness (Chuttur, 2009). Later, TAM model was updated by it author to include other variables and modify the relationships that he initially formulated.

The next Unified Theory of Acceptance and Use of Technology (UTAUT) model, which was developed by (Venkatesh et al., 2003)and commonly used in the field of e-learning, has identifiedfour constructs that are believed to influence user's technology acceptance. These constructs are: performance expectancy, effort expectancy, social influence and facilitating conditions. Further, the model emphasizes on the importance of four moderators: age, gender, experience and voluntariness of use that has a role in user's acceptance towards technology.

This study will seek to adopt this Unified Theory of Acceptance and Use of Technology (UTAUT) to explorer or study factors influencing student's E-learning Management System (EMS) adoption in Institutions of higher education since it's able to account for 70% of the variance (Adjusted R2) in usage intention, which is a substantial improvement over any of the original eight models and their extensions (Venkatesh et al., 2008).

2.2. Empirical Literature

E-learning is defined as learning or acquisition of knowledge distributed, facilitated and supported through the utilization of information and communication technologies (Jenkins & Hanson, 2003). (Liu & Wang, 2009) in their review of the definitions of E-learning found out that the characteristics of e-learning process was mainly based on the internet; information dissemination and knowledge flows in form of network courses among others. This innovation has given rise to learning economy wherein the capability to learn how to create new knowledge and adapt to changing conditions determine the performance of individuals, institutions, regions, and countries (Lundavall & Borras, 1999).

E-learning has continuously played a vital contribution to the progress of academic staff and students, and the improvement in the quality of teaching method and learning management system which have resulted in increased popularity of education in different educational institutions and organizations (Basheer& Ibrahim, 2011). Further it has also enabled learners to access the system at any time and at any place as long as there is an Internet connection.

Today, information technology (IT) is universally regarded as an essential tool in enhancing the competitiveness of the economy of a country. There is consensus that IT has significant effects on the productivity of firms. E-learning enable students at a higher educational level to obtain their education in parallel with pursing their personal goals and maintaining their own careers, without a need to attend classes and be subjected to a rigid schedule (Borstorff & Lowe, 2007). This has resulted to an increase in the number of online courses due to attained benefits for both university and learners as reported by (Kartha, 2006).

These effects will only be realized if, and when, IT are widely spread and used. It is essential to understand the determinants of IT adoption (Oliveira & Martins, 2011).

In a research study on framework of e-learning implementation in developing countries (Collins, Kennedy, & Geoffrey, 2012), found out that cost and poor Internet infrastructure considerably affect acceptance of e-learning in higher institutions of education. They indicated that majority students believe that their results would improve with e-learning implementation.

Many research studies regarding performance expectancy of information management systems have been carried out in the past. For example, (Margaret, Christina, & Kate, 1999) in a conference proceeding found out that E-learning Management System (EMS) in general make the lesson more interesting, easier, more fun for teachers and students. They also recommended that teachers and students should be provided with greater computer access and professional support. This report however, lacked any empirical backing and it does not follow the recommended academic research procedure.

While acknowledging and addressing the forces that can impede or support e-learning (Rosenberg, 2001, p. 180) recommends that employers be proactive in implementing e-learning approaches through training.

He also proposes a strong learning culture where four C's: "a culture of learning, champions who will lead e-learning efforts, communications that position e-learning value, and an integrated change strategy to bring it all together". He has given an example where difficulty in equating learning with work can be one source of resistance to e learning and may cause its value to be misunderstood or even distorted. Institutional factors belong to a group of extrinsic motivational factors influencing academic teacher's acceptance of e-learning technology. Numerous study results indicate that factors, which influence academic teachers, differ depending on the current phase of e-learning introduction into academic in question. According to (Nanayakkara & Whiddett, 2005), one of the key factor that influence EMS acceptance is capacity and reliability of the ICT infrastructure.

2.2.1. Performance Expectancy and Behavioral Intention to Adopt EMS

Performance expectancy refers to the degree to which an individual believes that using a particular system will help him or her to attain gains in job performance.

Behavioral intention is once perceived likelihood or subjective probability that he or she will engage in a given behavior(Venkatesh et al., 2008). Performance expectancy is based on beliefs about perceived usefulness, flexibility and interactivityas some of key indicators that affect performance expectancy of an information management system.

Many research have been done on performance expectancy for example; Performance expectancy have been reported to be the strongest predictor of intention and remains significant in both voluntary and mandatory settings at all points of measurement by (Brinkerhoff, 2006) during their study on effects of a long duration, professional development on technology skills. (Nanchang, 2009) also carried out a study to determine technology acceptance of web-based learning system of Taiwan Technical University students using cluster sampling and stepwise regression analysis to determine the relationship among constructs. The research results shown that performance expectancy, attitude towards using technology, facilitating conditions, self-efficacy and social influence have significant influence on behavior intention. Also, it has been found out that individual-level factors such as performance expectations, effort expectancy, perceived behavioral control and group level factors like colleague influence have positive effect on behavioral intention. In addition, incentive like the company reward method was found to have positive effect on colleague and manager to use e-learning behavior, although the company's incentive had no direct impact on behavioral intention, but through the manager influence including lead by example, recommendations of employees to use e-learning was reported to be providing a moderating effect on the behavioral intention to use E-learning system (PeiWen, Chien, &Chincheh, 2011).

Interactivity is another key indicator of performance expectancy, which have been contended by (S. & H., 2002) as one of key construct that make e-learning make learning less frustrating by making it more interactive and engaging, be able to adjust the time, location, content, and speed of learning according to their own personal schedules.

2.2.2. Effort Expectancy and Behavioral Intention to Adopt EMS

Effort expectancy has been defined as the degree of ease associated with use of the system, whereas behavioral intention is once perceived likelihood or subjective probability that he or she will engage in a given behavior (Venkatesh et al., 2008). Perceive ease of use, ease of learning and perceived efficacy beliefsare important factors or indicators that are believed to influence effort expectancy and behavioral intention (Viswanath, 2000). However, very little research has been conducted to understand how that perception forms and changes overtime a gap that this study will seek to fill.

Many empirical studies on effort expectancy and behavioral intention have been carried, for example; (Venkatesh et al., 2003) contends that effort expectancy is significant in both voluntary and mandatory usage contexts. However, they noted that each one is only significant during the first time period hence becoming non-significant over periods of extended and sustained usage.Further, effort oriented constructs are expected to be more salient in the early stages of a new behavior, when process issues represent hurdles to be overcome and later become overshadowed by instrumentality concerns (Davis, 1989). (Viswanath, 2000) suggest that effort expectancy is more salient for women than for the men and suggest that this could be driven by cognitions related to gender roles in this research study entitled determinants of perceived Ease of use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model.Computer systems have also been found to be enhancing teaching and learning by providing opportunities to practice and analyze offering better access to relevant articles, teaching and learning materials (Shahadat, Mahbub, &Che, 2012).

2.2.3. Social Influence and Behavioral Intention to Adopt EMS

Social influence refers to the degree to which an individual perceives that others believe that he or she should use the system, whereas behavioral intention is once perceived likelihood or subjective probability that he or she will engage in a given behavior(Venkatesh et al., 2008).(Venkatesh et al., 2003)Subjective norm a key construct drawn fromTheory of Reasoned Action (TRA) and defined as the person's perception that most people who are important to him think he/she should or should not perform the behavior in question according (Fishbein&Ajzen, 1975)is one of the key indicator along with image. Image which is drawn from Innovation Diffusion Theory (IDT) that was grounded in sociology and is defined as the degree to which use of an innovation is perceived to enhance one's image or status in one's social system.

Ali, Kate, & Xiaohui (2013) are of the view that e-learning implementation is not simply a technological solution, but a process of many different factors such as social and behavioral contexts. They also acknowledge that there is little knowledge about the important rule of such factors in technology adoption and use in context of developing countries a gap that should filled.(Shahadat, Mahbub, & Che, 2012) in their research study entitled barriers to the introduction of ICT into education in developing countries found out that many developing countries one of most significant social factors influencing the use of ICT in women is the low social status of women and hence providing education or the use ICT to women is not considered important which influence behavioral intention in adoption of e-learning management systems.

2.2.4. Behavioral Intention and Adoption Determinants of EMS

Behavioral intention refers to a person's perceived likelihood or subjective probability that he or she will engage in a given behavior. Adoption of e-learning management system is ability of person to accept and utilize system.

Past empirical research show that the influence of effort expectancy on behavioral intention is moderated by gender, age, and experience, such that the effect is stronger for men and women, particularly younger men and women, at their early stages of experience (Viswanath, 2000). They recommended the use of a three-item scale, which they adopted from (Davis, Bagozzi, &Warshaw, 1989) and extensively used in previous acceptance research in testing behavioral intention to use an information management system.

2.2.5. Facilitating Conditions and Adoption Determinants of EMS

Facilitating conditions is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh et al., 2003). Institutional policy, training support and leadership are some of the key indicators that have found to influence or affect facilitating conditions according to (Venkatesh et al., 2008). This study therefore adopted these key indicators in developing the conceptual framework.

Many previous empirical researches have been done for example;(Liu & Wang, 2009) reported that the rate of use, time spent on use and confidence in computer use affect acceptance of the e-learning environment positively in a research at the Swedish university. (Shahadat, Mahbub, &Che, 2012) also did a similar research and found out that barriers like lack of equipment, unreliability of equipment, lack of technical support and other resource-related issues affected adoption of e-learning management system.

The effective use of ICT would require the availability of equipment, supplies of computers and their proper maintenance including other accessories. Implementation of ICT demands other resources such as computers, printers, multimedia projectors, and scanners and many others, which are not available in all the educational institutions (Gulbahar, 2007).

Putting computers in classroom and wiring up schools does not of itself create exciting new learning situations that are about changing the ethos of classrooms and the culture of institutions but lack of administrative and institutional support, lack of training and experience, and limitations resulting from personality or attitudinal factors often result in teachers falling short when attempting to incorporate technology (Brinkerhoff, 2006). Equipping teachers with technology and then failing to provide adequate training or failing to provide adequate training or failing to consider curricular issues have led to technology anxiety (Mumtaz, 2000).

A key predictor of technology use is the amount of technology training. Training typically focuses on basic skills instead of targeting the integration of technology in instruction.

In order to be successful in information management system implementation, training and support should be provided. Many researchers have documented the need of training and support as one of facilitating conditions in adopting e-learning management system for example; (Vannatta & Fordham, 2004) assert that the amount of technology training was one of the best predictors technology use.(Croxall& Cummings, 2000) established that hours of training and availability of technology are significantly related to teacher's classroom usage of technology; use of technology in teaching increased as hours of training increased. They also contend that training should target the integration of technology in instruction rather than typically focusing on basic skills.

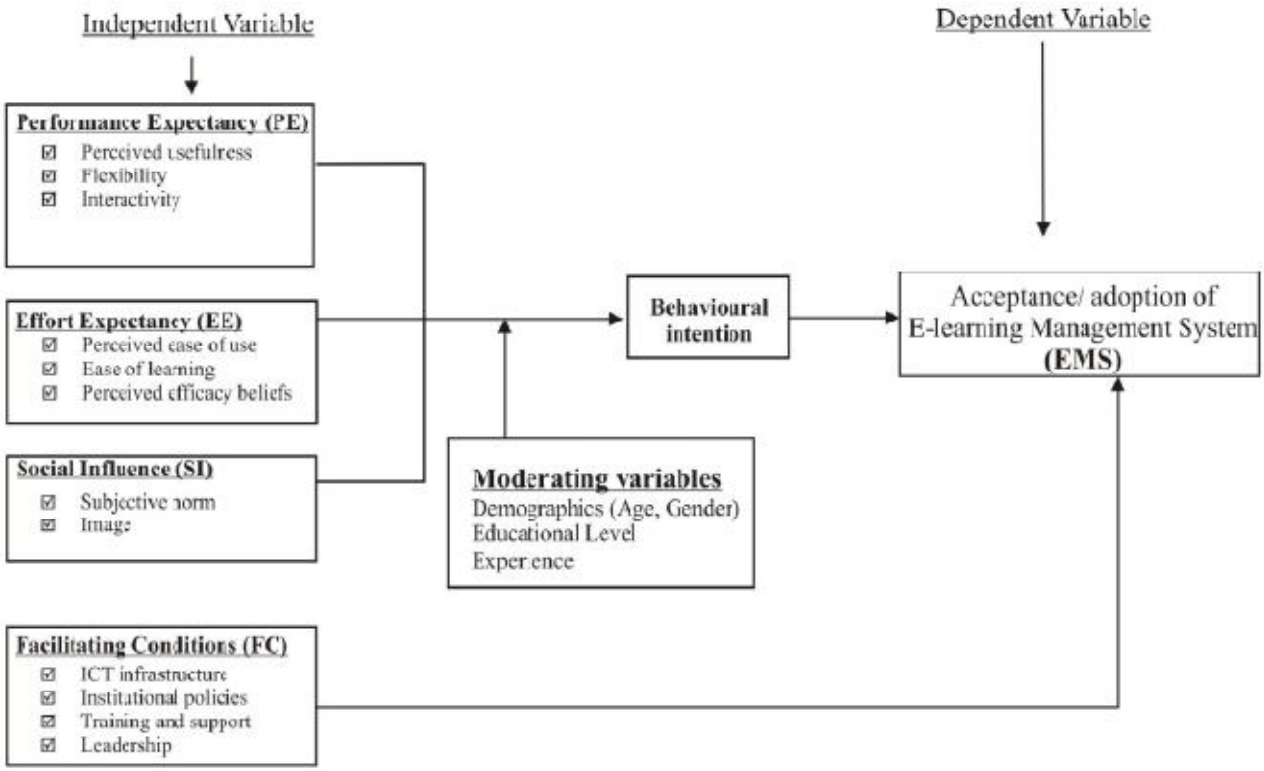
(Donna & Joe, 2009) in their research study entitled teacher's adoption of technology for use in family and consumer science instruction, recommends that administrators must be proactive in their encouragement and support of all teachers as they integrate technology in the teaching or learning support. In addition, all stakeholders must continue to provide leadership to the integration of technologyin instruction.

2.3. Summary and Gaps to be filled by the Study

In trying to understand factors that could be influencing adoption or acceptance of EMS in many universities in developing countries, many authors have carried out intensive studies regarding the adoption of e-learning management system (EMS). All researchers agree that there are many factors that would influence e-learning management system (EMS) both positively and negatively.

Existing theories of technology acceptance such as Technology Acceptance Model (TAM) and Unified Theory Acceptance and Use of Technology (UTAUT) have been instrumental in carrying out empirical studies regarding the factors that influence e-learning management system (EMS). Guided by both theoretical and empirical studies, it have been found out that constructs like performance expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) as proposed by UTAUT model do influence E-learning Management System (EMS) adoption or acceptance and more study. It is through this guide by literature that the researcher adopts below conceptual framework as proposed by (Venkatesh et al., 2003).

2.4. Conceptual Framework



Source: (Venkatesh et al., 2003)

This conceptual framework explains user intention to use an information system and subsequent usage behavior. The model holds that four key constructs: 1) performance expectancy, 2) effort expectancy, 3) social influence, and 4) facilitating conditions; the first three being direct determinants of behavior intention, and the fourth a direct determinant of e-learning adoption or acceptance. Gender, age, experience, and educational background are posited to moderate the impact of the four key constructs on usage or acceptance of EMS and behavior intention.

3. Research Methodology

The study adopted the survey research design, which according to (Creswell, 2009) provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample population, which is essential for achievement of this study.

Nairobi metropolitan has over 18 universities with estimated population of over 100,000 people. The subjects of the study were drawn from five universities, which were randomly selected. The respondents include lecturers, administrators, students and ICT staffs who are all presented in the table below showing the total population (school population) and target population indicating the part of the school population with special interest in e-learning. The respondents include lecturers, administrators, students and ICT staff.

Table 3.1: Study Population

Target Respondents	Total Population	Target Population	% of total target population
Lecturers	14,412	1,244	11.10%
Administrators	3,248	869	7.75%
Students	84,661	8,689	77.48%
ICT Staff	6,970	412	3.67%
Total	109,291	11,214	100.00%

Source: Survey (2014)

The study was realized by adopting the following sampling finite population computation formula that according to (Creswell, 2009) is recommended for a population of less than 50,000.

$n = Z^2 P (1-P) / d^2$

Where n = sample size;

Z = Z-statistics for a level of confidence (in this case will be 95%),
P = expected prevalence or proportion (in proportion of one; if 50%, P = 0.5), and
d = precision (in proportion of one; if 4%, d = 0.04).

Therefore, $n = 1.96^2 \times 0.5 (0.5) / 0.04^2 = 600.25 \approx 600$

This study therefore targeted approximately 600 respondents as its study sample, which was subdivided as follows.

Table 3.2 Study Sample

Target Respondents	Sample Size	% of total target sample
Lecturers	67	11.10%
Administrators	46	7.75%
Students	465	77.48%
ICT Staff	22	3.67%
Total	600	100.00%

Source: Survey (2014)

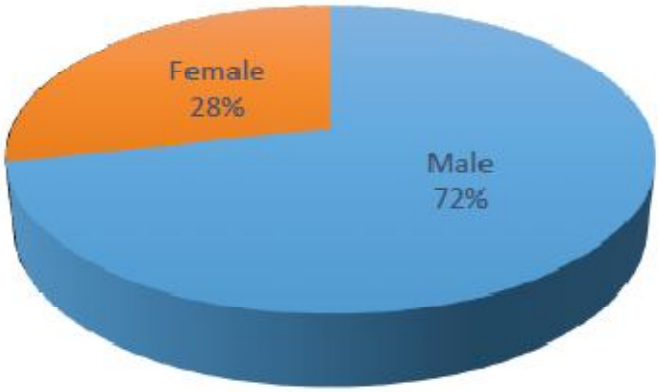
This study targeted respondents who were using or were involved in administering or running of an e-learning management system (EMS). These targeted participants were adequate to inform the study since they were supposed to offer information on their interactions with EMS and their views on its adoption and determinants of its adoption, all information that the participants were thought to harbor. Self-administered questionnaires were used as form of data collection since according to (David, 2009) they allow respondents to consult and respondents may be honest than when faced by an interviewer.

4. Data Analysis and Results

4.1. Demographic Information

The gender representations of respondents in this study were as shown in figure 4.1.

Figure 4.1 Gender



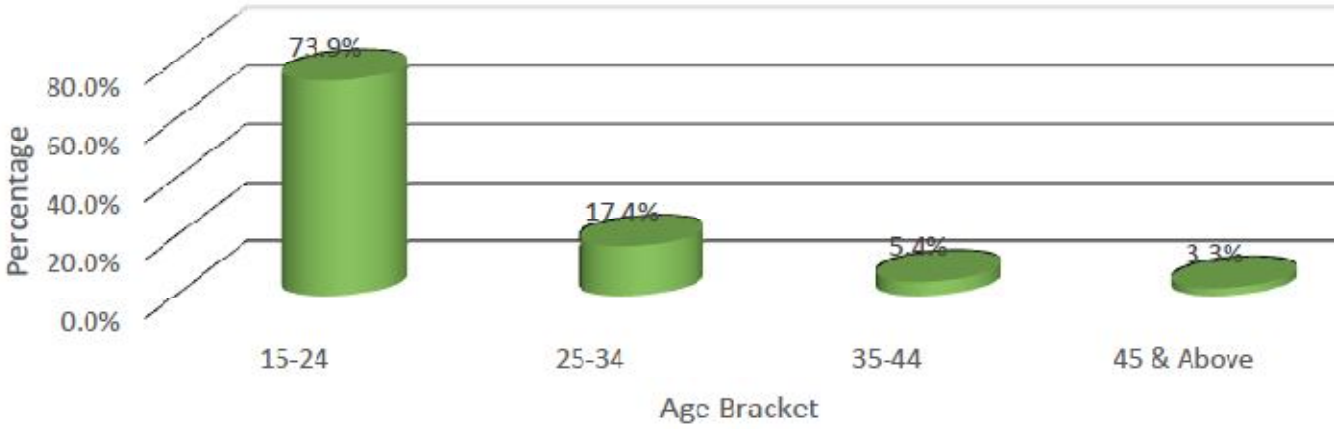
Source: Survey data (2014)

The proportion of males who participated in the whole population was 73% while that of ladies was 28%.

This shows the sample had more men than women who took part as respondents. This could be probably due to the high number of men to women pursuing the high learning.

Since age has being proven to be one of the key-moderating variable in many models for example UTAUT by (Venkatesh et al., 2003). The age distribution of the respondents who took part in the study is shown in figure 4.2.

Figure 4.2 Age Distribution



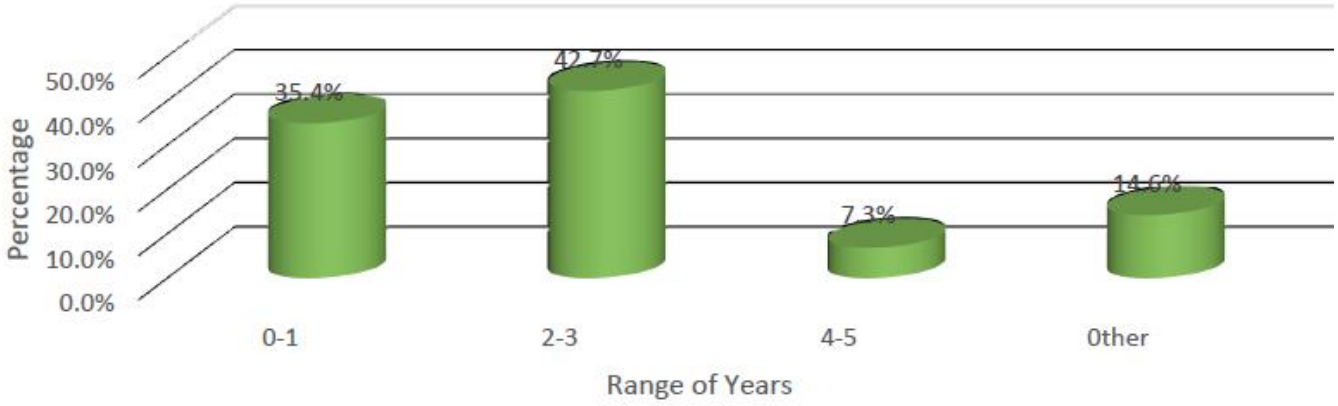
Source: Survey data (2014)

The findings shows that majority of the respondents who took part in this study were aged between 15-24 years. (73.9%). Approximately 17.4% were aged between 25-34 years, 5.4% between 35-44 years and the least those aged 45 years and above. The high number of young people in the study depicts the high number of student participation in the study.

4.2 Experience with E-learning Management System (EMS)

The researcher collected data on the experience with E-learning management system (EMS) among the respondents. The findings are as shown in figure 4.3.

Figure 4.3 Experience with E-learning Management System (EMS)



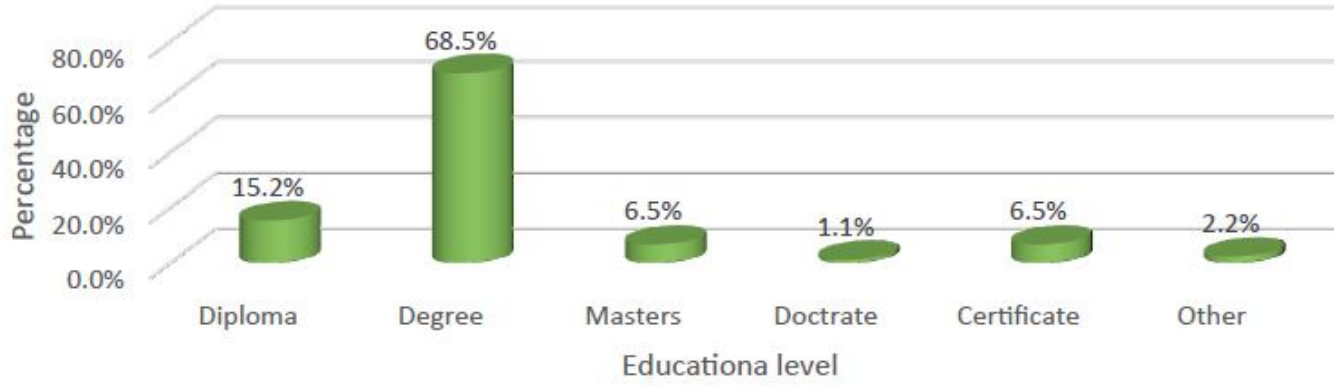
Source: Survey data (2014)

The results indicate that most of the respondents (42.7%) had 2-3 years of experience with EMS, 35.4% had an experience with EMS of less than 1 year. This shows that most of the respondents had little or no much experience with the EMS. This could be due to the low levels of usage of such technology in higher institutions of higher learning.

4.1.1. Education Level

The researcher collected data from the respondents on their education levels. The finding about their education levels is shown in figure 4.4.

Figure 4.4 Education Level



Source: Survey data (2014)

The result indicates that 68.5% of the respondents were undergraduates, followed by those who had diplomas (15.2%). This indicates that majority of the people who took part in this study had good understanding of education and had good education of up-to degree level, which is in line with what (Venkatesh et al., 2008)found out.

4.2. Performance Expectancy

The researcher collected data from the respondents on the importance of EMS on performance. The data was collected using a five point likert scale as (Venkatesh et al., 2003) recommends and analyzed using descriptive statistics (mean and standard deviation). In the scale, those variables which had a mean close to 4.0 represented "agree', those which had a mean close to 3.0 represented "neutral" while those which had a mean close to 2.0 represented "disagree" as shown in table 4.1. Standard deviation was used to indicate the variability of the responses.

Table 4.1 Performance Expectancy

Perceived usefulness	Rank	Mean	Std. Dev
Using EMS in my studies enable me to accomplish tasks more quickly	91	4.13	0.83
I find EMS useful in my studies	91	4.12	0.84
Using EMS enhances my efficiency as a student	91	4.05	0.82
Using EMS reduces my study load considerably	90	3.96	0.97
Using EMS helps me learn the topic	91	3.95	0.85
Using EMS increases my chance of scoring higher marks	91	3.73	1.17
Interactivity			
Allows to get information from online sources	91	4.27	0.73
Allows to interact with friends and work together on assignments	91	3.82	1.07
Can interact with teachers and get answers in reasonable time	91	3.63	1.06
Flexibility			
Provides flexibility of studying the topic anytime at any place	89	4.07	0.97
Enables me to learn at my pace	90	3.72	1.11
Enables to learn lessons in the form that is adapted to my learning style	89	3.69	1.06
Allows to choose topics in order of my preference	90	3.56	1.09

Source: Survey data (2014)

According to the findings shown in table 4.1, the respondents agreed that use of EMS enabled them to accomplish tasks more quickly (M=4.13) and enhanced their efficiencies as students (M=4.05). Other respondents agreed that Use of EMS reduced their study load considerably (M=3.96), learn the topics (M=3.95) and increased chances of scoring higher marks (M=3.73), which is in agreement with (Collins, Kennedy, & Geoffrey, 2012) who found out that majority students believe that their results would improve with e-learning implementation.

On interactivity, the respondents agreed that use of EMS allowed them to get information from online sources (M=4.27), allowed them to interact with friends and work together on assignments (M=3.82) and to interact with teachers and get answers within reasonable time frames (M=3.63).

Further the study found that the use of EMS was flexible and could fit in their work schedules. According to the results, the respondents could study at anytime and anyplace (M=4.07). They could also learn at their pace (M=3.72) and to learn in the most convenient learning style (M=3.69). In addition, the respondents also agreed that using EMS enabled them to choose topics in order of their preferences (M=3.56). This is in line with what (Borstorff& Lowe, 2007) reported that e-learning enable students at a higher educational level to obtain their education in parallel with pursuing their personal goals and maintaining their own career, without a need to attend classes and be subjected to a rigid schedule.

4.3. Effort Expectancy

The researcher collected data from the respondents regarding the EMS and effort expectancy. The data was collected on a five - point likert scale. The variables that had a mean close to 3.0 represented 'agree' while those, which had a mean close to 2.0 represented 'disagree'. Standard deviation was used to indicate the extent of variability of the responses. A standard deviation of less than 1.0 shows low variability and some consensus among the responses.

Table 4.2 Effort Expectancy

	N	Mean	Std. Dev
Ease of learning			
Learning to use EMS tool is easy	79	3.91	0.98
Ease of use			
Easy to become competent at using EMS	88	3.97	0.90
Easy to get EMS to do what i want	88	3.94	0.85
Self-efficacy			
I possess the skills necessary to use EMS tool	88	3.78	1.18
Most of my teachers possess the skills to use EMS	88	3.42	1.03

Source: Survey data (2014)

The results according to table 4.2, shows that respondents agreed that learning how to use EMS tool is easy (M=3.91). The respondents also agreed that it was easy to become competent using EMS (M=3.97) and easy to get EMS to do what is needed using EMS (M=3.94). The respondents on average also agreed that they possessed skills necessary to use EMS tools (M=3.78). However, the respondents were not sure that most of the teachers had the skills to use EMS (M=3.42). The above shows that it is easy to learn EMS, become competent and to get EMS in institutions of higher learning.

4.4. Social Influence

The researcher collected data from the respondents on the social influence and EMS. Similar to section 4.4, the data was analyzed in mean and standard deviation. The results are tabulated in table 4.4.

Table 4.3: Social Influence

	N	Mean	Std. Dev
Subjective Norm			
Most people who are important to me/want me to use EMS	85	3.27	1.17
Most of the people who influence my behaviour want me to use EMS in my study	87	3.25	1.15
Image			
Using e learning adds to my status amongst my colleagues	87	3.40	1.07
Students who use EMS have more prestige	86	3.31	1.17
Students who use EMS are considered to be smart	87	3.18	1.11

Source: Survey data (2014)

The respondents were not sure whether most people who were important to them wanted them to use EMS (M=3.27), neither were they sure whether most people who influenced their behavior wanted them to use EMS (M=3.25). The respondents could not tell whether using e-learning influenced their status (M=3.40). Also they could not ascertain whether students who used EMS had prestige (M=3.31) or were considered to be smart (M=3.18).

4.5. Facilitating Conditions

The respondents also provided information on the availability of enabling conditions and EMS use in the institutions of higher learning. The data was analyzed using mean and standard deviation as shown in table 4.4.

Table 4.4 Facilitating Conditions

	N	Mean	Std. Dev
ICT infrastructure			
ICT support staff are always available to assist	87	2.69	1.24
My institution provides all facilities I need for E-learning	89	2.56	1.27
The ICT infrastructure is available when I need it	89	2.42	1.23
Institutional Policies			
My institution provides me opportunity for E-learning	89	3.19	1.20
My institution provides incentives to students who use E-learning	89	2.70	1.22
My institution provides incentives to teachers who use E-learning	89	2.82	1.23
Training and Support			
My institution provided me training on how to use EMS tool	88	2.93	1.35
There is help available if required while using EMS	89	2.89	1.25
Leadership			
The head of my department/institute uses EMS	88	3.13	1.14
The head of my department/institute supports students who use EMS	89	2.98	1.19

Source: Survey data (2014)

On ICT infrastructure, the respondents were not sure whether there were ICT support staff always available to assist (M=2.69) neither were they sure that their institutions provided all facilities needed for e-learning (M=2.56). However, the respondents generally indicated that ICT infrastructure was not always available when it was needed (M=2.42) in the institutions. This is in agreement with what (Collins, Kennedy, & Geoffrey, 2012) reported in their research study entitled framework of e-learning implementation in developing countries. They also report a similar problem where cost and poor Internet infrastructure considerably affect acceptance of EMS in institutions of higher education.

On institutional policies, the respondents were not sure whether the institutions provided opportunities for e-learning (M=3.19), incentives to students who used e-learning (M=2.70) or even incentives to teachers who used e-learning (M=2.82). The indifference of the respondents' answers implies that institutional policies on ICT are not that clearly highlighted or very strongly emphasized in institutions of higher learning.

Croxall& Cummings (2000) established that training and availability of technology are significant in relation to usage of technology. Vannatta& Fordham (2004) also did similar research and found out training to be the best predictor of technology use. However, the researcher found out that most of respondents were not sure whether their institutions of higher learning provided them with training on how to use EMS tools (M=2.93). Further they were not sure whether there was help available while using EMS (M=2.89), which is a worrying trend that affects EMS integration into instruction.

On leadership, the respondents on average were not sure whether the heads of their departments/institute used EMS (M=3.13). Also the respondents were not sure whether the heads of their departments/institute supported those who used EMS (M=2.98). This is contrary to what (Donna & Joe, 2009) recommend that administrator must be proactive in their encouragement and support of all teachers as they integrate technology in teaching or learning support.

4.6. Behavioral Intention

The respondents also provided information on the behavioral intentions and the use of EMS tools in institutions of higher learning. The information was analyzed using mean and standard deviation as shown in table 4.5.

Table 4.5 Behavioral Intention

	N	Mean	Std. Dev
I intend to use E-learning in the next semester	87	3.99	0.90
I plan to use EMS in the next semester	88	3.90	1.02
I predict i could use EMS in the next semester	88	3.88	0.92

Source: Survey data (2014)

The respondents agreed that they intended to use e-learning in their subsequent semester (M=3.99). Further, the respondents on average planned to use EMS in subsequent semester (M=3.90) and predicted their probabilities of using EMS in their subsequent semesters (M=3.88).

The researcher conducted a correlation analysis to establish the relationship between the factors as shown in table 4.6.

Table 4.6 Correlation

		PE)	EE	SI	FC	BI
PE	r	1	.580**	.355**	.272**	.228*
	Sig. (2-tailed)		.000	.001	.009	.029
EE	r	.580**	1	.428**	.356**	.229*
	Sig. (2-tailed)	.000		.000	.000	.028
SI	r	.355**	.428**	1	.314**	.215*
	Sig. (2-tailed)	.001	.000		.002	.040
FC	r	.272**	.356**	.314**	1	.154
	Sig. (2-tailed)	.009	.000	.002		.143
BI	r	.228*	.229*	.215*	.154	1
	Sig. (2-tailed)	.029	.028	.040	.143	
**. Correlation is significant at the 0.01 level (2 tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Source: Survey data (2014)

According to the findings shown in table 4.6, effort expectancy, social influence, facilitating conditions and behavioral intentions were all positively correlated with performance expectation. This implies that performance expectation increased with increase in other factors. The Performance expectancy, social influence, facilitating conditions and behavioral intentions were all positively correlated with the effort expectancy.

The social influence was positively correlated with performance expectancy, effort expectancy, facilitating conditions and behavioral intentions, which agree with UTAUT theory (Venkatesh et al., 2003). All the factors were positively correlated with an exception of the facilitating conditions and the behavioral intentions.

4.7. Discussion of the Findings

The study collected data from respondents who were teaching, studying and even working with institutions of higher learning. The study found that most of the respondents had no more than 3 years' experience with EMS implying low EMS use or a recent technology, which had not penetrated much among the institutions of higher education. That trend in the use of EMS depends on the changes in student's demographic factors in educational, delivery market conditions, and in innovation technology itself.

The adoption and the willingness to adopt EMS in institutions of higher learning were influenced by performance expectancy of the users. From the findings, the users perceived EMS to be useful, the use of EMS tools enabled the users to accomplish tasks more quickly, enhanced their efficiencies as students and reduced their study load. It helped the students to learn the topics, which in turn enhanced their chances of scoring higher grades. These findings agree with UTAUT model that performance expectancy is based on beliefs about perceived usefulness.

The use of EMS was also seen to enhance interactivity in institutions of higher learning. The use of EMS allowed the users to get information from online sources, interact with friends and work together on assignments. Further the use of EMS helped the students to interact with teachers and get answers within reasonable time frames. That interactivity was one of key construct that make e-learning less frustrating by enabling the person to be able to adjust the time, location, content, and speed of learning according to their own personal schedules. This implies that use of EMS enabled a wider scope of interaction between the teachers and the students and friends.

The use of EMS also enhanced flexibility. The users could enjoy the benefit of convenience, which EMS brought to them. The users could study anytime and at any place of their convenience. The use of EMS also allowed the learners to study at their own pace and in most convenient learning style. Further, the use of EMS enabled the users to choose topics in order of their preferences.

UTAUT state that perceived ease of use, ease of learning and perceived efficacy beliefs are important factors or indicators influenced effort expectancy and behavioral intention. On effort use, the study found that learning on how to use EMS was easy among the users. The respondents agreed that it was easy for them to become competent at using EMS. It was also easy for them to get EMS to do most of their learning activities.

In general, the respondents agreed having skills necessary for use of EMS. However, the respondents were neutral on whether the teachers had such skills.

The other factor influencing the use of EMS in institutions of higher learning was the social influence. The study found that there was no clear understanding whether friends of the respondents and their peers wanted them to use EMS. They were not sure whether use of e-learning neither influenced their status nor influenced their prestige. These findings show that the social factor was not a strong factor influencing the adoption of EMS.

Adoption and use of EMS was influenced by the enabling facilities and conditions. Venkatesh argued that institutional policy; training support and leadership are some of the key indicators that have found to influence adoption of a new technology. The study respondents had no clear understanding on whether there was good ICT infrastructure to facilitate use of EMS. The respondents had no good knowledge on the availability of the ICT support staff and available facilities for ICT use. The respondents further held that ICT infrastructure was not readily available for use in the institutions of higher learning. Shahadat also did a similar research and found out that barriers like lack of equipment, unreliability of equipment, lack of technical support and other resource-related issues affected adoption of e-learning management system. This implies a low perception of ICT infrastructure among the EMS users in higher institutions of learning.

On institutional policies, there was no clear understanding on whether institutions provided opportunities for higher learning. The respondents were not aware on whether the institutions extended incentives to students and teachers, who used e-learning implying inadequate institutional policies on EMS use in higher institutions of higher learning. These findings agree with argument that lack of administrative and institutional support often result in teachers falling short when attempting to incorporate technology in learning institutions.

The respondents were not able to identify any training on how to use EMS tools neither could they identify any help they could get when using EMS. This indicates lack of support and training on EMS use or lack of awareness of the availability of the training and support for the institutions, which show the need of training and support as one of facilitating conditions in adopting e-learning management system.

On leadership, the respondents could not identify whether heads of departments used EMS nor supported the use of EMS. These findings imply lack of infrastructural, policy framework, training and leadership support on the use of EMS, which has greatly affected the use of EMS in institutions of higher learning. The study found high behavioral intentions and need to use EMS amongst student and staff in institutions of higher learning. The staff and students intended and had planned to use EMS in subsequent semesters. Some had predicted high probabilities of using EMS in future. This implies a high demand and need for EMS use among the institutions of higher learning.

4.8. Conclusions

The study concludes that staff and students in institutions of higher learning have less experience in EMS. The study found that most of the students and staff have less than 3 years' experience with EMS. Both staff and students have been motivated to adopt EMS by the expected performance associated with the use of EMS. The use of EMS was useful, enabled faster completion of tasks, enhanced efficiencies and helped students to learn the topics. The use of EMS also increases chances of interactivity between students, teachers and even friends. The other expected aspect of EMS is flexibility. The users can study at any time and at any place of their convenience and even study at their own pace.

The expected and perceived ease of use influences the adoption of EMS. The willingness to use EMS is driven by the ease of learning EMS, ease of access and availability of skills to use technology among the staff and students in institutions of higher learning. However, social influence was found to no strong influence in the willingness to use EMS among staffs and students. The study found that neither friends nor peers influenced their willingness to adopt EMS.

The study concludes that the low rate of EMS use is attributable to facilitating conditions and facilities.

The staff and students had little knowledge on the availability of ICT infrastructure, support staff and facilities. Other determinants such as institutional policies, training and leadership support on ICT use were weak. This unsporting climate has killed the spirit of ICT use amid the higher demand by the staff and students. Regarding behavioral intention, the study concludes that the need and desire to use EMS among students and staffs has positively contributed to the increased demand and preparedness to adopt EMS in institutions of higher learning.

Finally, this study concludes that more need to be done in relation to these findings in order to successfully adapt EMS in institutions of higher learning in Kenya.

4.9. Recommendations

The study found that most of the staff and students in institutions of higher learning have no much experience with EMS despite the perceived usefulness of the technology. To improve the use of EMS the university management should heavily invest in technological use and EMS use and availability. The study found that ICT infrastructural capacities in the institutions of higher learning were weak and unknown. This has been a set back towards use of EMS in the institutions. Thus it is recommended that more ICT facilities and support staff be availed to assist users.

The study found no clearly stated institutional policies on ICT use in the institutions of higher learning.

This works against the adoption of ICT in the institutions. The study recommends that the management of such institutions develop a policy framework to guide the use of ICT use as well creating incentives on the use of the new upcoming technology.

The study found that training and support extended by the institutions to students and staff who use EMS to be minimal. This has derailed the progress on the adoption of the ICT in the institutions. It is recommended that training and support programs be established to ensure a sustainable use and prevent collapse of EMS in the institutions of higher learning in Kenya.

To make the EMS use a success, it is recommended that EMS use be synchronized with the departmental systems to ably grow and sustain the culture of EMS use among the staff and students.

4.10. Suggestions for Further Areas of Study

A similar study should be conducted at the lower institutions of learning to facilitate easy penetration of the technology use in learning. The study further recommends that a comparative study be done to compare the factors affecting the use of EMS in public and private institutions.

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