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APPLICATION OF THE UTAUT MODEL TO UNDERSTAND THE FACTORS INFLUENCING THE USE OF WEB 2.0 TOOLS IN E-LEARNING IN KENYAN PUBLIC UNIVERSITIES

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DECLARATION

I declare that this project is my original work and has not been submitted for the award of a degree in any other University.

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DEDICATION

To Joshua, Jonathan, Hannah and Thomas.

ACKNOWLEDGEMENT

ABSTRACT

The focus of this study was to identify factors influencing the use of Web 2.0 tools in e-learning in Kenyan Public Universities. The tools can then be introduced and used to aid in successful collaborative learning.

The specific objectives of the study were to: identify the tools and social networking sites used for e-learning in Kenyan Universities; assess learner perspectives and challenges posed when using these tools; determine the factors influencing the use of Web 2.0 tools in e-learning in Kenyan Universities in order to assess their contribution towards online learning.

A descriptive survey research design was used. Data was collected through questionnaires from both students and lecturers. Purposive sampling was used for the selection of the respondents who included e-learning instructors and students. A total of 48 lecturers and 136 students participated in the study.

The results of the study showed that the most common tools used for e-learning in Public Kenyan Universities were Social networks. These included Youtube and Facebook. It was also interesting to note how learners perceived the tools. The major challenges relating to these tools were slow Internet connectivity, privacy and security concerns and the vast amount of information associated with these tools, hence finding it difficult to identify relevant content.

Finally, Performance expectancy was identified as the main factor influencing the use of Web 2.0 tools in Public Universities in Kenya. Performance expectancy is the extent to which an individual believes that using the tools will help him/her expand (or gain) knowledge during e-learning. These tools are perceived by both students as lecturers as aiding in expanding knowledge. Other factors included social influence, facilitating conditions and effort expectancy. The adoption of these tools for e-learning will largely depend on facilitating conditions, that is, Universities providing for their use by integrating them in teaching and learning.

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Definitions/Acronyms of Terms

Blogs — A website containing a writer's or a group of writers' own experiences, observations and opinions, often having images and links to other websites

Constructivism — Creating new knowledge based on existing knowledge already possessed

E-learning — Use of the Internet and related technologies to aid in the training and learning processes

E-Pedagogy — Method and practice of online teaching

LMS — Learning Management System

Mashup — A webpage or application that integrates complementary elements from two or more sources

ODeL — Open Distance and e-Learning

Podcasts — A digital audio or video file or recording, usually part of a themed series, that can be downloaded from a website

Social bookmarking — A web service where people store, organize, search and manage 'bookmarks' of web pages

Social networks — An online service or site through which people create and maintain interpersonal relationships

UTAUT — Unified Theory of Acceptance and Use of Technology

Web portals — A single point of access through a Web browser to critical business information located inside and outside (via Internet) an organization

Wiki — A Website that allows users to collaborate, edit and update content on the site

Youtube — A video sharing service that allows users to watch videos posted by other users and upload videos of their own

CHAPTER ONE

Introduction

1.1 Background of the Study

As technology evolves, there is a shift towards virtual learning, mobility and ubiquity. This moves the focus away from attending the traditional physical classroom to the flexibility of learning from anywhere at any time. The evolution has given rise to faster retrieval of learning materials through the Internet and web portals.

E –learning refers to the use of the Internet and related technologies to aid in the training and learning processes. Garrison (2011) defines e-learning as a 'synchronous and asynchronous communication for the purpose of constructing and confirming knowledge'. Synchronous learning provides for live student-teacher interaction using Internet technologies (Tarus & Gichoya 2015). In asynchronous communication, the learner studies at his or her own pace (Takalani, cited in Tarus & Gichoya 2015).

With the advancement in technology, learning institutions are faced with the challenge of how to integrate these technologies, especially in their teaching (Sangrà, Vlachopoulos & Cabrera 2012). E-learning technology has evolved from use of Compact Disks/Digital Versatile Disks to video conferencing, virtual learning environments to mobile learning, where mobile devices such as laptops and mobile phones are used, to collaborative online learning. A self-paced mode of learning has been realized, where the learner can study and complete sessions at their own time and location. Learners can study from the comfort of their homes, offices and even recreational facilities among other places.

Learning may take place in a virtual learning environment, where the student accesses their lecture notes, assignments, discussion forums and chats from web portals; Mobile learning, which enables the exploitation of learning opportunities and provides the user with learning flexibility in terms of space and place (Ayoma & Oboko 2013; Behera 2013). There is no

limitation to the user's learning environment, as long as they have their mobile devices at hand. Blended learning offers a combination of both face-to-face and online learning.

1.2 Overview of Web 2.0 Tools

The evolution of the web has led to a more dynamic and collaborative environment. Web 2.0 is described as a collaborative environment in which users have the opportunity to contribute to a growing knowledge base, assist in the development of web-based tools, and participate in online communities (Tim O'Reilly, cited in Stevenson & Liu 2010). They enhance e-learning by providing for online participation in activities such as discussion forums, wikis, podcasts, workshops and chats, and as stated by Orehovacki, Bubas & Konecki (2009, p. 444), the tools can be used to supplement or substitute traditional learning management systems, such as Moodle or Blackboard.

Web 2.0 tools include Social networking, Social bookmarking, Really Simple Syndication (RSS), blogs, wikis, mashups, tags, folksonomy, tag clouds and podcasts among others. They allow sharing of images, videos and documents, content production, collaboration and opportunities to interact in new ways through immersive virtual worlds (Aghaei, Nematbakhsh & Farsani 2012; Conole & Alevizou 2010). These tools have brought about a revolution in e-learning leading to innovative ways of teaching with the users having more interaction and collaboration.

1.3 Problem Statement

E-learning offers plenty of flexibility in this era of modernization. Kenyan universities have embraced technology-oriented learning, therefore making it possible to access education and training without being limited by geographical barriers. However, as argued by Winter et al. (2010), many institutions are struggling to embed e-learning effectively, and there's still a lot to learn with regard to the enhancement of student learning. Many learners therefore miss out on

the 'benefits of the new IT-facilitated learning paradigm' (Mohamed et al., cited in Tarus & Gichoya 2015).

The goal of an e-learning system is to equip the learner with relevant content and to provide an easy-to-use interface. However, some multimedia-based e-learning systems do not provide for sufficient learner-content interactivity. This makes online learning passive and lacks the motivation aspect brought about by online collaboration. A study conducted by Mbati (2013) on online social media applications revealed that discussion boards and online blogs have the potential to contribute to aspects of both constructivist (creating own understanding/new knowledge through existing knowledge) and observational learning (based on a model, such as a teacher). Both discussion boards and blogs are part of the tools in Web 2.0 technology.

Some key issues facing both instructors and students in e-learning include lack of skills in e-pedagogy, low level of online collaboration and a low level of response to online activities (Nyerere et al., cited in Muuro et al., 2014). Web 2.0 tools can be used to respond to these issues as they are not only easily accessible, but also provide a variety of methods for enhancing online communication and collaboration. An unpublished case study conducted by Moro (2013) on the adoption of Web 2.0 technologies at the University of Nairobi showed attitude and behavioral intention as the main factors that influence student' perception of these tools.

According Solomon & Schrum (cited in Stevenson & Liu 2010), many educators are discovering how Web 2.0 tools, such as educational blogs, wikis, and podcasts could provide students with opportunities for greater learner control, active construction of knowledge, and access to collaborative learning environments. An unpublished study employing the UTAUT model showed performance expectancy as a strong predictor of behavior intention to use Web 2.0 tools in secondary schools in Nairobi County (Oluoch, 2014). No known study in my view has been conducted to determine the factors influencing the use of Web 2.0 tools in e-learning in Kenyan Universities. This study therefore seeks to fill the knowledge gap by identifying the factors influencing the use of these tools in e-learning in Kenyan public universities.

1.4 Research Objectives

Overall Objective

To assess the factors influencing the use of Web 2.0 tools in e-learning in order to aid in successful collaborative e-learning

Specific Objectives

The specific objectives for the study were developed from the above overall objective, and are stated as follows:

1) To identify the tools and social networking sites used for e-learning in Kenyan Public Universities

2) To assess learner perspectives and challenges posed when using these tools

3) To determine the factors influencing the use of Web 2.0 tools in e-learning in Kenyan Public Universities, in order to assess their contribution towards online learning

1.5 Research Questions

The research questions used for this study were as follows:

1) Which tool(s) and social networking sites are used for e-learning in Kenyan Universities?

2) What perspectives and challenges does the learner experience when using Web 2.0 tools?

3) What factors influence the use of Web 2.0 tools in e-learning in Kenyan Universities?

1.6 Value of the Study

Administrators will be able to refine the learning environment as well as provide sufficient resources for use of these tools.

This study will be important to online instructors as they will gain knowledge on how Web 2.0 tools can enhance their e-pedagogy to incorporate online collaborative content delivery and training.

The study will create awareness for students on how they can use these tools for effective collaborative learning.

The study will also contribute to the existing literature on e-learning in Kenyan Universities.

CHAPTER TWO

Literature Review

2.1 E-learning

The key issue in education today is not access to more information. Students in the digital age are already bombarded with too much information. It is increasingly difficult to sift through the vast amounts of information in order to locate what is significant. One of the goals of e-learning is to provide better ways to make sense of the access to large amounts of information. (Garrison & Anderson 2011)

E-learning has several benefits which include: Self-paced learning; having a wide number of learners globally; does not require physical attendance of the student or lecturer and it promotes collaborative learning by use of technology tools (Marfo & Okine 2010). With the numerous benefits offered by e-learning, challenges exist as well. In this mode of learning, the bulk of responsibility is left to the students. They therefore have to be self-motivated and work hard towards completion of their tasks within the self-paced learning environment. This requires a lot of discipline and good time management. The flexibility of working from anywhere, anytime also leads to the disadvantage of a lack of social community. Learners are left to their own, without an opportunity to physically interact with other students or facilitators. This may hinder the development of their social skills. Learners may also face infrastructural challenges when using their devices or the Internet. A study carried out in Kenyan universities by Nyerere, Gravenir & Mse (2012) found that challenges in e-learning were related to delays in production of study materials, inadequate funding and low teaching staff levels.

Tarus, Gichoya & Muumbo (2015, p. 129) found out in a survey done in Kenya that there was lack of interest and commitment among the teaching staff to use e-learning, and that teachers also found it time consuming to develop e-content. Similar studies also reported that management of the Learning Management Systems content was solely left to the educators, therefore limiting its impact in the production of new models of teaching and learning (Meishar-Tal, Kurtz & Pieterse, 2012). In addition, Dron argues that Learning Management Systems place

students at the "bottom rung of the ecological hierarchy" (Dron, cited in Tomberg, Laanpere, Ley, & Normak, 2013). These systems offer limited prospects of implementing learning activities, tools and resources that have been already provided by their teachers (McLoughlin & Lee; Siemens, cited in Tomberg, Laanpere, Ley, & Normak, 2013).

In order for e-learning to be considered as a quality and important aspect of education, it must prove that it is "more than a medium to conveniently access content" (Garrison & Anderson, 2011, p. 54). The solution, according to Dunlap & Lowenthal (2011, p. 5), can be found by use of Web 2.0 tools due to their ability to make "lifelong learning possible in ways that typical Learning Management Systems- with their highly bounded, asynchronous, threaded, and removed-from-professional-context structure- cannot".

2.2 E-learning in Kenyan Public Universities

E-learning is gaining universal acceptance as a viable means of enabling large numbers of students to access education (Marfo & Okine 2010). Going through a variety of Kenyan Universities' websites shows that e-learning is being offered as an alternative mode of study. In Kenya, e-learning has been adopted by both public and private Universities. The adoption is still at a slow rate due to the challenges facing its successful implementation. However, both blended and mobile learning are carried out in various universities.

As stated by Tarus & Gichoya (2015), the components required towards the successful implementation of e-learning in Kenyan Universities include: Technological components such as computers, network connectivity, internet bandwidth and a reliable Learning Management System (LMS); Organizational components such as operational e-learning policies, financial allocation for e-learning activities and top management support; Pedagogical components such as learner support and motivation by e-learning instructors, learner and teacher skills on e-learning pedagogy and adequate and quality e-learning content. The pedagogy commonly used in Kenyan Universities is the use of LMSs which limit innovation due to their centralized and hierarchical structures (Dron; Sclater, cited in Meishar-Tal, Kurtz & Pieterse, 2012). A report

commissioned by the Higher education academy in the UK indicated constructivism and connectivism as the two pedagogical approaches that align most closely with Web 2.0 practice. It further stated that the focus of these approaches was to enhance students' experience and creativity of use (Conole & Alevizou, 2010).

A study conducted by Tarus, Gichoya and Muumbo (2015) on the challenges of implementing e-learning in Kenya revealed four public Universities that have started e-learning implementation: University of Nairobi, Kenyatta University, Moi University and Jomo Kenyatta University of Agriculture and Technology. University of Nairobi offers e-learning via a multimedia portal in which students can access handouts, upload assignments and participate in online discussions within a group and have real time discussions with other students online.

Kenyatta University has a Digital School of Virtual and Open Learning (DSVOL) that offers distance e-learning for students who are unable to take up full time programmes. It has also incorporated Adaptive management systems where students are given tablet devices that contain the learning material. Using these devices, students can submit their assignments online as well as engage in interactive collaboration using chats and forum discussions.

2.3 Web 2.0 Tools

Web 2.0 tools are used for creation of networks and emphasize on online sharing and collaboration (Olasina 2011). Some of the benefits of using Web 2.0 tools in an Open Distance Learning (ODL) environment include: Collaboration, openness, evolving content, user-created websites, user control, social networking, self-publishing platforms, cloud computing, dynamic content, participatory culture, easy and quick communication, online survey creation and cost reduction (Mbatha 2014).

2.3.1 Social Networks

Social networks enable social relations among groups of students who share similar courses, and can be used to establish connections and collaborations with other students. Madge et al. & Selwyn (cited in Conole & Alevizou 2010) explored the application of social networking in

formal educational contexts and established its support for interaction between learners, peer support and allowing for student discussions to address problems faced during their studies.

2.3.2 Podcasts

Orehovacki, Bubas & Konecki (2009, p. 444) define Podcasting as a 'method of digital recording of audio or video files and their distribution over the web'. They further noted that the main benefit of a podcast was to allow students to download content that they would like to know more about from specialized web services, and play them on the device of their choice. The benefit of broadcasting over the Internet offers both instructors and students the ability to access and provide feedback on global content (Olasina 2011).

2.3.3 Wikis

As posited by Conole & Alevizou (2010), Wikieducator has been used for experimental purposes as well as publishing in a variety of fields for all levels of education. It allows for collaborative writing of documents, capacity building, free content development and establishment of community networks.

2.3.4 Blogs

As pointed out by Mbati (2013), online blogs stimulate the reflection criteria for constructivist learning. Blogs allow for chronological publishing of discussions which are known as posts, and are open to the public to read and interact with. Learners can therefore express their opinions as well as give their feedback/comments on blog posts.

2.3.5 Social Bookmarking

Social bookmarking is used to facilitate the recall, identification and exchange of resources on specific topics of interest (Bower et al., cited in Hew & Cheung, 2013). It is a web service for sharing Internet bookmarks, and allows for storing, organizing and managing web pages. Learners can help other learners find a site by tagging the site using specific keywords.

2.3.6 Mashups

A mashup is a webpage that combines from two or more websites create a single website for its consumers. A student from one location can gain access to all forms of information required in order to acquire new knowledge, hence providing the benefit of efficiency in accessing learning content (Orehovacki, Bubas & Konecki 2009).

2.4 Theoretical Framework

This study used the Unified Theory of Acceptance and use of technology (UTAUT) model. The model is based on eight technology acceptance theories or models, which include: Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model, the Theory of Planned Behavior (TBP), the combined TAM and TBP, the model of Personal Computer Utilization, the Innovation Diffusion Theory and Social Cognitive Theory (Venkatesh et al., cited in Thomas, Singth & Gaffar 2015).
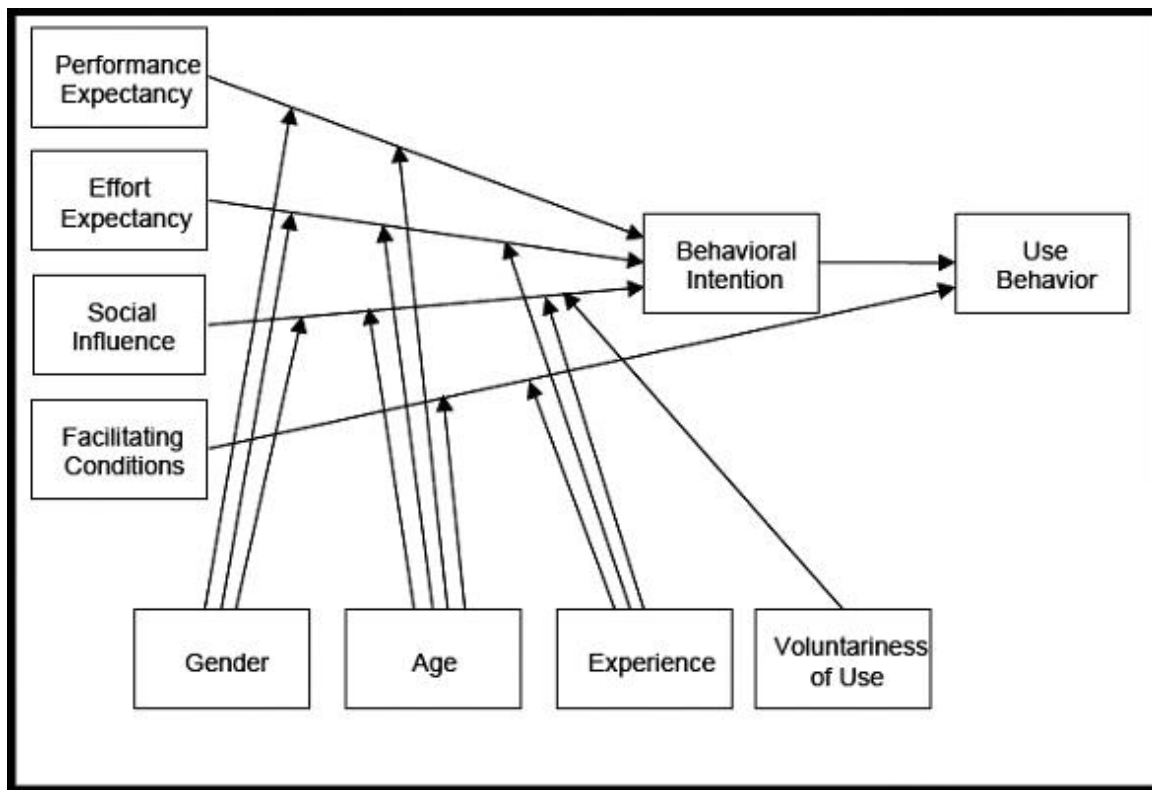
Figure 2.1 The UTAUT Model (Venkatesh et al., 2003)

This model incorporates four moderators to account for dynamic influences. They include gender, age, voluntariness, and experience (Venkatesh et al., cited in Tan 2013).

The UTAUT model has four constructs:

Performance Expectancy: The extent to which an individual believes that using the tools will help him/her expand their knowledge (or gain) during e-learning.

Effort Expectancy: The ease of use of Web 2.0 tools.

Social Influence: The extent to which the individuals believe that important others believe they should use these tools.

Facilitating conditions: The perceived extent to which the organizational and technical infrastructure required for the support of the use of these tools exists.

Four moderators, which include gender, age, experience with similar systems and voluntariness, are used to influence the dependent and independent variables of user acceptance. Voluntariness refers to the extent to which potential adopters perceive the adoption decision to be non-mandatory.

Performance expectancy, effort expectancy and social factors have direct effects on behavioral intention (the extent to which the individual has formulated conscious plans to perform or not perform some specific future behavior). When these constructs are combined together with facilitating conditions, they have direct effects on use behavior (Thomas, Singth & Gaffar 2015).

2.5 Justification of UTAUT Model

The UTAUT model integrates eight Technology Acceptance models. It is therefore a comprehensive model that can be used for analyzing user perspectives based on the four constructs: Performance expectancy, effort expectancy, social influence and facilitating conditions. The model can also be used to evaluate the success of new technology (Ibrahim & Jaffar, cited in Abu-Al-Aish & Love, 2013). Since the use of Web 2.0 tools in e-learning in Kenyan public Universities is relatively new, this model is applicable in order to understand the

factors influencing the use of these tools in order to determine whether they can be integrated as part of the existing Learning Management Systems. Moreover, the model has shown robustness and validity with regard to new IT innovations (Mtebe & Raisamo, 2013).

2.6 Conceptual Framework

Based on the UTAUT model, four core determinants can be used to evaluate the acceptance and use of Web 2.0 tools. These determinants can therefore contribute towards the assessment of specific Web 2.0 tools, such as social networks, and to confirm whether they influence the use of the tools. This framework shows these determinants as factors influencing use of Web 2.0 tools. They include: Performance expectancy, Effort expectancy, Social influence and Facilitating conditions. Figure 2.2 shows the factors influencing the use of Web 2.0 tools.

Figure 2.2: Factors influencing the use of Web 2.0 tools
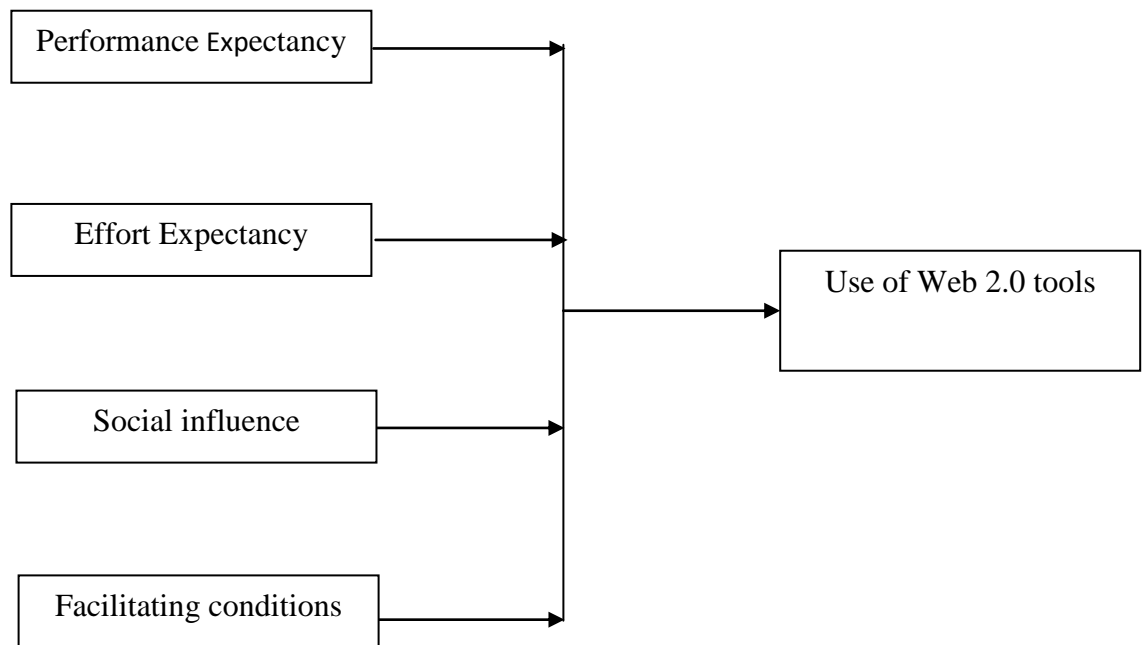
Source: Author (2015)

Performance expectancy: This will determine whether the tools aid the students and teachers in expanding knowledge or gaining new knowledge.

Effort expectancy: This will establish whether the tools are deemed easy to use by both e-learning teachers and students.

Social influence: This seeks to discover whether the e-learning students' know other people, for example, colleagues and friends who use these tools, therefore influencing their use of the tools.

Facilitating conditions : This will ascertain whether the University provides for the use and technical support of the tools.

CHAPTER THREE

Research Methodology

3.1 Research Design

Descriptive survey research design was used for the study. A questionnaire was the main instrument used for data collection. A survey derives comparable data across subsets of the chosen sample so that similarities and differences can be found (Cooper & Schindler 2009). This design was used to determine the factors influencing the use of Web 2.0 tools in e-learning.

3.2 Data Collection

Data was collected from the Public Universities conducting e-leaning in Kenya, in the county of Nairobi. The universities included University of Nairobi (UoN), Kenyatta University (KU) and Jomo Kenyatta University of Agriculture and Technology (JKUAT). Purposive sampling was used for the selection of the respondents who included e-learning instructors and students. Purposive sampling is where participants are selected for their unique characteristics, experience, attitudes or perceptions (Cooper & Schindler 2009).

The population for the study included two e-learning instructors and two students from each academic year. These participants were selected due to their familiarity with e-learning, therefore either being conversant with use of Learning Management Systems or having knowledge of Web 2.0 tools. Other characteristics included gender, as the selection involved both male and female respondents, as well as variations in the age bracket, which was found to be different from one year of study to another. Data was collected from the Faculty/Schools offering e-learning in the selected Universities. This gave a total of 28 Faculties/Schools (Source: Websites), and therefore 280 questionnaires to be filled out. Table 3.1 shows the population of the study.

Table 3.1: Population of the Study

List of Accredited Public Universities based in Nairobi	Faculties/Schools /Colleges	Faculties/Schools /Colleges offering e-learning	Number of respondents based on the Faculties/Schools /Colleges (Lecturers)	Number of respondents based on the Faculties/Schools /Colleges (Students)
University of Nairobi	33	16	10	46
Kenyatta University	17	8	18	59
Jomo Kenyatta University of Agriculture and Technology	13	4	15	31
Moi University	11	0	0	0
Egerton University	11	0	0	0
Technical University of Kenya	18	0	0	0
Dedan Kimathi University of Technology	6	0	0	0
Kisii University	9	0	0	0
Multimedia University	5	0	0	0
Total	85	28	43	136

Source: Author's web survey and questionnaire data

Data was collected using structured questionnaires. The questionnaires had two sections. Section A was used for background information of the respondent and their experience in use of the tools. Section B was used to collect data on the factors influencing the use of Web 2.0 tools used for e-learning in Kenyan Universities, using the UTAUT model. The four factors, Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions were found to be internally consistent and reliable with a Cronbach's coefficient alpha value at .800.

The survey was conducted in Nairobi county. This area was selected because out of the 22 Public Chartered Universities accredited by the Commission for University Education, 9 of these Universities are located in Nairobi and 3 of them offer Open Distance and e-learning (ODeL) as a mode of study. The sample can therefore be used to represent public Universities in Kenya.

3.3 Data Analysis

Data collected was analyzed using SPSS and Microsoft Excel programs. This analysis entailed use of both descriptive and inferential statistics. Descriptive statistics include measures of central tendency, measures of dispersion and measures of association. This was used for quantitative data. Inferential statistics which involves factor analysis was used for qualitative data. Mugenda (2011) defines factor analysis as a statistical procedure that analyzes the inter-correlations among a large set of data in order to identify a smaller number of common factors, each of which is internally consistent. The results were used to determine the factors influencing the use of Web 2.0 tools in e-learning.

CHAPTER FOUR

Results and Discussions

4.1 Introduction

The aim of the study was to understand factors influencing the use of Web 2.0 tools in e-learning in public Universities in Kenya. A descriptive survey research design was used for the study in order to compare data across subsets of the chosen sample. The respondents were required to use a Likert scale of 1-5 (1= Strongly disagree; 2=Disagree; 3= Undecided; 4=Agree; 5= Strongly agree) to rate the factors influencing the use of Web 2.0 tools in online learning. The data was analyzed using SPSS version 20.0 and Microsoft Excel 2007 software. Out of the 280 respondents targeted in the study, 184 (65.7%) respondents completed the questionnaire.

4.2 Background Information

4.2.1 Staff Background Information

Section A of the questionnaire was for collecting background information which included the Age bracket, Gender, Name of University, Faculty or School and Experience in the use of Web 2.0 tools. Out of the 56 staff members targeted in the study, 48 (85.7%) respondents returned the questionnaire. Majority of the respondents were male (33, 68.8%), while female respondents accounted for 31.3% (15).

Most of the respondents (25, 52.1%) fell in the 31-35 age bracket, followed by those who were between 26 to30 years old (10, 20.8%). Nine (18.8%) respondents fell between 36 to 40 years. Only 4 (8.3%) respondents were above 40 years of age. 31.3% of the staff who responded were from JKUAT, 37.5% from KU, 20.8% from UoN and five respondents (10.4%) did not include the name of the University. A total of 43 out of 56 staff responded to the question regarding their experience in use of Web 2.0 tools. From the responses, 53.5% were conversant with using the tools (experienced), 37.2% had recently started using the tools (beginners), while 9.3% had never used the tools. Table 4.1 shows a summary of staff background information, while Table 4.2 shows the number of respondents in each Faculty.

Table 4.1 Staff Background Information

	Variable	Frequency	Percentage (%)
1. Age	26-30 years	10	20.8
	31-35 years	25	52.1
	36-40 years	9	18.8
	Above 40 years	4	8.3
2. Gender	Male	33	68.8
	Female	15	31.3
3. University	JKUAT	15	31.3
	KU	18	37.5
	UoN	10	20.8
	No answer	5	10.4
4. Experience in using	Experienced	23	53.5
Web 2.0 tools	Beginner	16	37.2
	No experience	4	9.3

Table 4.2 University and Faculty cross tabulation

Faculty/School	JKUAT	KU	UoN	No answer	TOTAL
Business	9	9	7	2	27
Computing and Information Technology	6	-	-		6
Economics	-	5	-		5
Engineering and Technology	-	4	-		4
Engineering	-	-	3		3
No answer	-	-	-	3	3
Total	15	18	10	5	48

4.2.2 Student Background Information

Student background information included the Age bracket, Gender, Name of University, Programme and year of study and Experience in the use of Web 2.0 tools. Out of the 224 students targeted in this study, 136 (60.7%) respondents returned the questionnaire. Majority of the respondents were male (98, 72.1%), while female respondents accounted for 27.9% (38).

Most of the respondents (49, 36%) fell in the 31-35 age bracket, followed by those who were between 26 to 30 years old (39, 28.7%). Thirty four students (25%) were between 20-25 years. Consequently, 7 respondents (5.1%) fell between 36 to 40 years, and the same number of students (7) fell under the above 40 years age bracket. 31 of the students who responded were from JKUAT, 59 from KU and 46 from UoN. From the responses, 98% were conversant with using Web 2.0 tools (experienced), 34% had recently started using the tools (beginners), while 4% had never used the tools. Table 4.3 shows a summary of student background information, while Table 4.4 shows the number of respondents per University Programme.

Table 4.3 Student Background Information

	Variable	Frequency	Percentage (%)
1. Age	20-25 years	34	25
	26-30 years	39	28.7
	31-35 years	49	36
	36-40 years	7	5.1
	Above 40 years	7	5.1
2. Gender	Male	98	72.1
	Female	38	27.9
3. University	JKUAT	31	22.8
	KU	59	43.4
	UoN	46	33.8
4. Experience in using	Experienced	98	72.1

Web 2.0 tools	Beginner	34	25
	No experience	4	2.9

Table 4.4 University and Programme Cross Tabulation

Programme	JKUAT	KU	UoN	TOTAL
BCOM	10	6	24	40
Information Technology	14	48	-	62
Horticulture	-	-	6	6
Economics		5		5
Project management	6	-	-	6
BA	-	-	15	15
Blank	1	-	1	2
Total	31	59	46	136

4.3 Web 2.0 tools and Social Networking sites used for Online Learning

4.3.1 Tools used for Online Learning

Social networks (68.2%) and wikis (58.5%) were perceived to be the most common tools (when combining very frequently and frequently) used in online learning. Also, 36.5% and 35.7% (who indicated very frequently and frequently) rated podcasts and social bookmarks respectively as frequently used for online learning. Blogs and mashups had the lowest frequency of use, indicating that they were rarely used for online learning. Table 4.5 shows the various tools used for online learning.

Table 4.5 Tools used for Online Learning (Percentages)

Web 2.0 tools	Never (1)	Very rarely (2)	Occasionally (3)	Frequently (4)	Very frequently (5)	Mean
Social networks	-	12.4	19.4	34.9	33.3	3.89
Wikis	7.3	14.6	19.5	18.7	39.8	3.69
Podcasts	11.6	41.9	10.1	25.6	10.9	2.82
Social bookmarking	24.8	27.9	11.6	32.6	3.1	2.61
Blogs	11.6	24.0	32.6	17.8	14.0	2.98
Mashups	12.4	52.7	7.8	24.0	3.1	2.53

4.3.1.1 Social Networking sites used for Online Learning

Majority of the respondents (66.2%) identified Youtube as the most commonly used site for online learning. Fifty seven students (41.9%) indicated that they used Facebook for learning. LinkedIn was also regarded essential in learning with a frequency of 42 (30.9%). Students also indicated that they used Google groups for social networking. Consequently, a significant number of respondents identified Twitter as having a frequency of 28 (20.6%). Tumblr was perceived as the least common site for online learning (7, 5.1%). Figure 4.1 shows the social networking sites used for online learning.

Figure 4.1 Social Networking sites used for Online Learning (both staff and students)
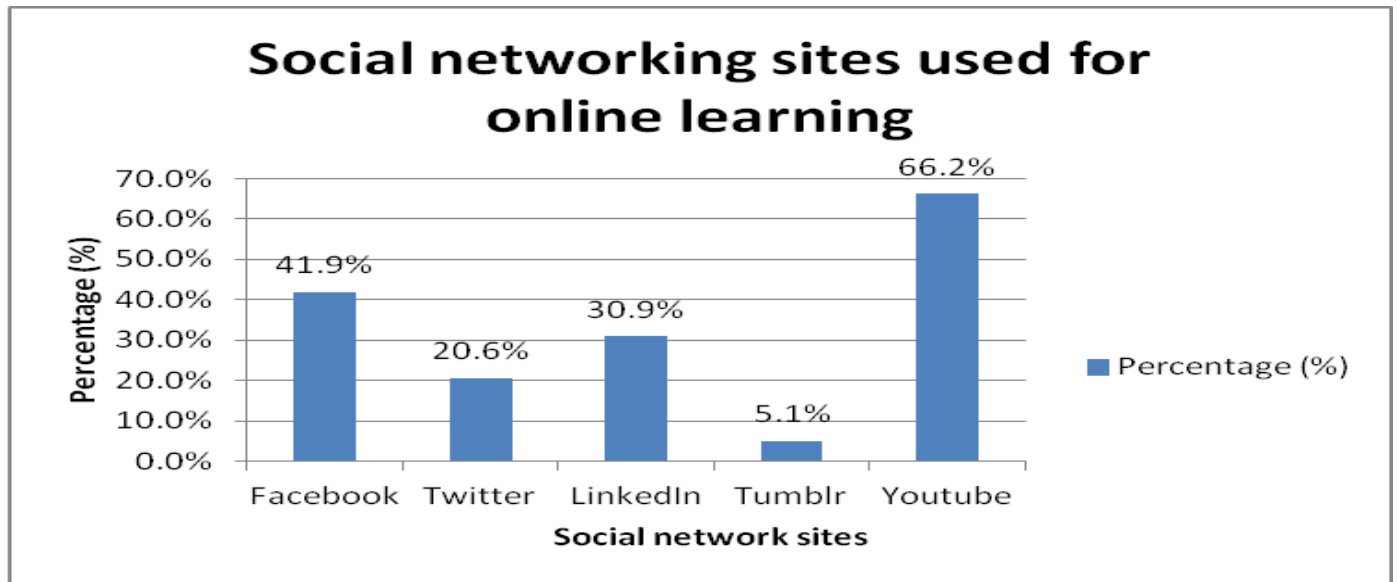
Source: Author (2015)

4.4 Learner Perspectives when using specific Web 2.0 Tools

The respondents were provided with a list of constructs (performance expectancy, effort expectancy, social influence, facilitating conditions and voluntary use) to determine whether these constructs contribute to the use of the tools, for each specific tool.

4.4.1 Social Networks

This tool was seen to be the easiest to use, as well as being used on a voluntary basis. A majority of the respondents 100% and 77.2% respectively (when combining strongly agree and agree) indicated that the tools were both easy to use and that it was not mandatory to use them. A majority of the students (77.2%) when combining strongly agree and agree were of the opinion that the decision to adopt use of social networks was on a voluntary basis. The tool was also seen as having plenty of information that could easily divert students' attention into non-academic work, as can be seen from the comments below:

> *"Filtering information that is relevant to learning given the huge amount of information."*

> *"Easy to divert from learning to other things."*

> *"There are many sites, and every person has a preference. No interface to integrate all sites."*

Social influence was also a contributing factor towards the use of social networks.

4.4.2 Wikis

This tool was rated by the majority of students as a tool used for gaining new knowledge. The results showed that majority of the students (100%) when combining strongly agree and agree believe that wikis can be used to expand their knowledge. However, not all information in the tool was found relevant, or suitable for academic purposes as can be seen from the comments below:

> *"Some information provided in Wikis may not be correct especially given that they are open for anyone to collaborate and provide information."*

> *"Not made available by the university. There are many wikis that have a lot of information, but rarely related to my course."*

The above comment also showed the contribution of facilitating conditions towards the use of the tool. Social influence was also a contributing factor, meaning that students use wikis because others significant to them used it.

4.4.3 Podcasts

Podcasts were also seen as tools that aid in gaining new knowledge. An audio or video file can be downloaded and played over and over again, therefore making it a useful tool for learning. As one student commented:

> *"The best type of support found in Youtube."*

This tool was however rated the lowest under the facilitating conditions construct. This is evident below, with regard to its use:

> *"...No technical challenge of usability only that the resources have not been provided or made available for the relevant courses by the university."*

This shows that very little support is provided by Universities for students to use podcasts. Only 3.7% of the students strongly agreed that facilitating conditions was a factor in using the tool.

4.4.4 Blogs

Facilitating conditions was seen as the major influence in enabling the use of blogs in Universities. This means that support is provided for use of this tool. Blogs also had a significant rating of 93.4% and 87.5% (when combining strongly agree and agree) as a tool used in performance expectancy and effort expectancy respectively. However, one student stated that the tool cannot be used as reference material in academics. This is as noted below:

> *"Most of the blogs are not recognized as authoritative academic references."*

Lack of clear information was also seen as a contributing factor on why one student did not support the use blogs, as seen below:

> *"Sometimes different blogs present different perspectives on the same subject making it hard to determine which is the right and wrong perspective."*

4.4.5 Social Bookmarks

This tool was mostly perceived to be used voluntarily. The tool had a significant rating of 64.7% (when combining strongly agree and agree) under the voluntary use construct. Only 10.9% of the learners strongly agreed that the tool aided in expanding knowledge. The tool was also viewed as having a large diversity of information, as one student rightly commented:

> *"Sometimes the bookmarked pages may not be appropriate for what we are studying. That is there are a lot of bookmarked pages for different fields."*

4.4.6 Mashups

This tool was perceived to be the least common tool used for online learning. Even after clearly being given the definition for mashups, some respondents were not even aware that such tools existed. This can be seen from the following comments:

"Not sure of how to identify a mashup."

"Not clear."

"Not much information is available."

It was also identified as the least used tool in gaining new knowledge, as well as being mostly used due to social influence. A significant number of respondents (46.3%) stated that the tool was used on a voluntary basis.

4.5 Challenges Experienced when using Web 2.0 Tools in e-learning

4.5.1 Challenges Experienced by Staff

From the findings, majority of the staff, 81.3% of the staff (combining strongly agree and agree) rated slow internet connectivity as a challenge experienced when using Web 2.0 tools in e-learning. Of the respondents, 81.2% indicated privacy concerns, for example, disclosure of personal information that may include personal profiles or preference information. A significant number of respondents 77.1% and 72.9% indicated a lack of quality in the content and lack of interest in the use of the tools respectively. Consequently, 71.8% were of the opinion that communication challenges due to the high number of users of the tools were a hindrance to use of these tools. A minority of the respondents 25% rated the lecturer's attitude towards integration of Web 2.0 in e-learning as a challenge in the use of Web 2.0 tools in online learning. Table 4.6 shows the challenges experienced by staff when using Web 2.0 tools for training.

Table 4.6 Challenges Identified by Staff regarding use of Web 2.0 Tools for e-learning

Challenges experienced by staff when using Web 2.0 tools	Rated Strongly agree and Agree (%)
Slow internet connectivity	81.3%
Privacy concerns (for example, disclosure of personal information that may include personal profiles, preferences, etc)	81.2%
Lack of quality content	77.1%
Lack of interest in use Web 2.0 tools eg. Blogs, Social networks	72.9%
Communication difficulties (due to the high number of users of these tools)	71.8%
Lack of adequate knowledge in using the tools	62.1%
Stimulating learner interest and collaboration (lack of)	60.4%
Difficult to use these tools to provide relevant content (eg. when using blogs for training, posting content on social networks, etc)	33.4%
Learner's attitude towards integration of Web 2.0 in e-learning	29.1%
Lecturer's attitude towards integration of Web 2.0 in e-learning	25.0%

Source: Author (2015)

4.5.2 Challenges Experienced by Students

Slow internet connectivity was identified by a majority of the students, (89.3%), when combining strongly agree and agree, as the key challenge hindering the use of Web 2.0 tools. Consequently, a significant number of respondents (72.3%) when combining strongly agree and agree indicated that it was difficult to sift through the amount of information available in order to decide on what is relevant for learning purposes. It was also notable that lack of knowledge in Web 2.0 tools was a hindrance to using the tools, as rated by 57.2% of the respondents. Table 4.7 also showed that 46.5% considered communication difficulties as a challenge due to the high number of users of the tools. Table 4.7 shows the challenges identified by students when using Web 2.0 tools for online learning.

Table 4.7 Challenges Identified by Students regarding use of Web 2.0 Tools for e-learning

Challenges experienced by students when using Web 2.0 tools	Rated Strongly agree and Agree (%)
Slow internet connectivity	89.3%
Difficult to sift through the amount of information available in order to decide on what is relevant (eg. when using blogs and social media for learning)	72.3%
Lack of adequate knowledge in using the tools	57.2%
Lecturer's attitude towards integration of Web 2.0 in e-learning	55.4%
Learner's attitude towards integration of Web 2.0 in e-learning	52.7%
Lack of motivation in use of Web 2.0 tools eg. Blogs, Social networks	50.9%
Communication difficulties (due to the high number of users of these tools)	46.5%

Source: Author (2015)

4.6 Factors Identified by Respondents that Influence their use of Web 2.0 Tools in Online Learning

Figure 4.2 shows the factors influencing the use of Web 2.0 tools in online learning. A majority of the respondents strongly agreed that Performance expectancy (78.7%) and Social influence (59.6%) enhanced their use of Web 2.0 tools for online learning. A significant number of respondents (46.5%) considered the ease of use of the tools as an enabling factor. Facilitating conditions (25.3%) was observed to be the least factor influencing the use of the tools. A large percentage of respondents (64%), when combining strongly disagree and disagree were of the opinion that the tools were not easy to use. A minority (5.1%) of the respondents were also

undecided on whether the tools were easy to use. A significant number of respondents (120.4%) agreed that Web 2.0 tools aid in expanding knowledge and gaining new knowledge. There was no respondent who disagreed or was undecided on the Performance expectancy construct. Figure 4.2 indicates the factors influencing the use of Web 2.0 tools in online learning.

Figure 4.2 Factors Influencing the use of Web 2.0 Tools in Online Learning
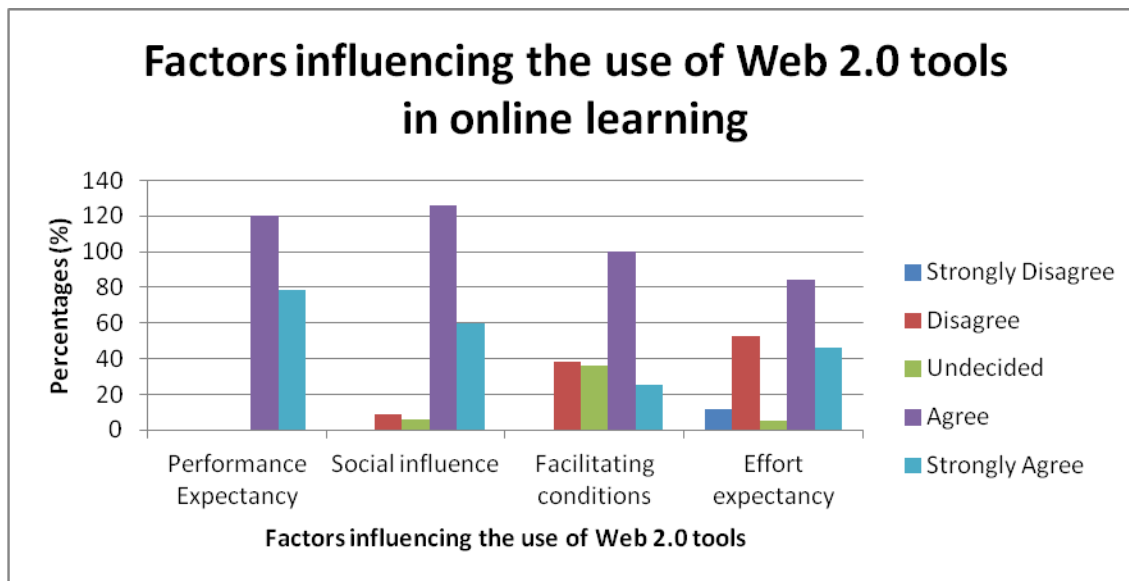
Source: Author (2015)

4.7 Discussion: Factors influencing the use of Web 2.0 Tools in Online Learning

The main objective of this study was to assess the factors influencing the use of Web 2.0 tools in e-learning in order to aid in successful collaborative learning. In order to achieve this, the specific objectives included:

4.7.1 Tools and Social Networking sites used for e-learning in Kenyan Universities

Social networks are the most common tool used by both lecturers and students for online learning. There seemed to be a convergence by both staff and students regarding Youtube and Facebook being the most commonly used social network sites, and Tumblr was indicated as the least common site for both learning and training.

4.7.2 Learner Perspectives and Challenges posed when using Web 2.0 Tools

Internet Connectivity

Although this aspect does not directly relate to Web 2.0 tools, slow Internet connectivity emerged as the main challenge, by both staff and students' regarding use of Web 2.0 tools. Some students noted that they had limited access the Internet, and were therefore unable to exhaustively interact with these tools. This can be curbed by providing lower Internet bandwidth costs in order to make it more affordable by Universities in Kenya (Tarus, Gichoya & Muumbo, 2015).

Privacy and Security Concerns

Privacy concerns may include the disclosure of personal information, especially when using social media platforms where personal profiles are created. Security issues were also a key concern, specifically in the verification of social media profile users. This made it difficult to ensure whether the users were authentic or not. The same was also observed in a study conducted by Chen & Bryer (2012) on investigating instructional strategies for using social media in formal and informal learning, which expressed privacy concerns by faculty, stating that it may inhibit the desired learning outcomes to be achieved.

Vast amount of Information/Lack of Relevant Content

This challenge was posed by students, observing that it was difficult to sift through the vast amount of information in order to obtain relevant information for a particular topic or lesson being studied. Some cited that content found on social media was irrelevant and neither accurate, nor useful for study. One student also noted that there was a delay in receiving feedback when using these tools, since the response was not in real time. Another respondent noted that although there was plenty of content found in Wikis, the content was not relevant to the course the student was undertaking.

Lack of Knowledge in using the Tools

Some staff and students noted that they were not conversant with some of the tools. Below is a comment from one of the lecturers:

> *"First time use needs training how to incalculate course objectives and use of the tool (what to be used on this tool and what not)"*

It should therefore not be assumed that introduction of the tools will automatically aid in their successful use. The course content needs to be incorporated as part of their use. Despite lacking knowledge in use of these tools, the respondents showed an interest in using the tools if Universities provided for their use.

Facilitating Conditions

Both lecturer's and students noted that Universities do not provide for use of Web 2.0 tools. It was evident that the respondents were interested in using the tools for e-learning.

4.7.3 Factors influencing the use of Web 2.0 Tools in e-learning in Kenyan Public Universities

Performance Expectancy

Performance expectancy was perceived as the most important factor influencing the use of Web 2.0 tools in Universities. This shows that Web 2.0 tools aid in expanding knowledge and gaining new knowledge, which will be of value to both staff and students. Wikis and Podcasts received the highest rating in performance expectancy. A study carried out on exploring factors affecting students' continued Wiki use for individual and collaborative learning showed that Wikis offered students a platform for discussion, leading to enhanced efficiency in completion of their group term report (Yueh, Huang & Chang, 2015).

Social Influence

This was perceived as the second factor influencing the use of these tools. Colleagues, peers and friends are known to use these tools and they can therefore collaborate and share ideas. Social networks and wikis were perceived as the commonly used tools under the social influence factor.

Facilitating Conditions

Facilitating conditions was not considered as a major factor influencing the use of Web 2.0 tools. Although a number of students did not agree on this, most lecturers were of the opinion that facilitating conditions are provided for, especially for use of blogs and wikis. Voluntary use was highly rated, especially when using social networks and podcasts. This could be because these tools can be accessed from personal devices such as tablets and mobile phones, making facilitating conditions a non-issue in using the tools.

Effort Expectancy

Effort expectancy was perceived to be the least common factor influencing the use of Web 2.0 tools. Some respondents were of the opinion that some of the tools were not easy to use, especially social bookmarks and mashups.

Summary

From this study, Performance expectancy was identified as the main factor influencing the use of Web 2.0 tools in public Universities in Kenya. Web 2.0 tools are therefore perceived to be beneficial to both students and lecturers because they aid in gaining new knowledge. Each tool can be creatively used to aid in performance expectancy. This can also be confirmed from the findings from a study on investigating instructional strategies for using social media in formal and informal learning, which showed that social media can be used to enrich discussions and provide increase engagement when integrated into formal learning environments (Chen & Bryer, 2012). Further work can also be carried out on whether Performance expectancy is the key contributor when using these tools in private universities.

CHAPTER FIVE

Conclusion, Recommendations and Further work

5.1 Introduction

The study determined the factors influencing the use of Web 2.0 tools in e-learning in Kenyan Public Universities.

5.2 Objectives attained from the Study

From the study, it can be concluded that Social networks are the most commonly used tools for e-learning. These tools were used on a voluntary basis, as there was no mandatory requirement from the University for their adoption. Both staff and students can create profiles and use these tools for collaborative learning and sharing information. The most common social network sites indicated were Youtube and Facebook. Podcasts were also seen as significant in e-learning. This is where pre-recorded audio and video files can be downloaded from the Internet and used to gain knowledge.

This study was also used to shed light on some of the challenges experienced when using Web 2.0 tools. The major challenge posed when using the tools was slow internet connectivity. Interestingly, there was a convergence between both staff and students, showing that this was a key challenge, even though it does not directly relate to Web 2.0 tools, but to e-learning as a whole. Two other instructor-related concerns included privacy issues due to disclosure of personal information, as well as finding it difficult to use these tools to provide for quality content to the students. Students stated that it was difficult to sift through the vast amount of information in order to decide on what content was relevant. They also identified lack of adequate knowledge in using the tools as a factor limiting their use.

The final objective was to determine the factors influencing the use of Web 2.0 tools in e-learning in Kenyan public universities. Performance expectancy was perceived as the main factor, and Social influence as the next contributing factor. The least common factor influencing the use of these tools was Effort expectancy. It was also noted that Facilitating conditions were

not provided for by the Universities, therefore inhibiting a collaborative use of the tools for learning.

5.3 Key Contributions

The key contribution made from this study was to establish the key factors influencing the use of Web 2.0 tools, understand challenges facing use of these tools and identify the tools and social network sites used in Kenyan public universities. The findings obtained from each objective can be used by both public and private universities seeking to adopt the use of Web 2.0 tools for e-learning.

The first objective identified Social networks as the most frequently used tools for e-learning. This could be possible as social networking sites are voluntarily used by both students and staff for other non-academic purposes. Similar studies support the use of Facebook and Facebook groups for collaborative learning as well as providing for increased communication (Meishar-Tal, Kurtz & Pieterse 2012; Al-Rahmi, Othman & Yusuf 2015). Youtube videos with relevant course content can also be used for educational purposes (Ahmed, AbdelAlmuniem & Almabhouh, 2016).

The second objective noted the challenges faced when using Web 2.0 tools. Apart from slow Internet connectivity, privacy issues, lack of quality content, vast amounts of information and lack of sufficient knowledge in using the tools, were identified as some of the challenges facing both students and staff. These challenges can be addressed individually during the integration of the tools, as they cannot be generalized for all tools, except for the challenge of slow Internet connectivity.

The third objective identified Performance expectancy and Social influence as the most important factors influencing the use of Web 2.0 tools in Kenyan Public Universities. These findings imply that both students' and staff perceive these tools as adding to building of both their knowledge and relationships. Using the UTAUT model, Abu-Al-Aish & Love (2013, p. 98), also identified Performance expectancy as a significant factor affecting the behavioral intention to use m-learning.

A study conducted on student perception of social media use in academic success found that students used social media to connect with their peers and faculty. The study also indicated that social media helped create strong relationships between students (Creighton et al, 2013). This implies that social influence is a key factor influencing the use of Web 2.0 tools, thereby motivating students towards learning.

While these results are not conclusive, and can therefore not be generalized to all Universities in Kenya, they can be used by University stakeholders, that is, Administrators, Lecturers and Students, to make informed decisions towards the integration of the tools. It is evident from the study that both instructors and students are conversant with the tools. There however needs to be a way of integrating the tools as part of the learning. A study conducted by Lwoga (2015) on making learning and Web 2.0 technologies work for higher learning institutions in Africa recommends working together with students in order to incorporate experimentation, collaboration and teamwork, and enhance positive tutor/student relationships. Universities should therefore provide formal environments where the tools can be used for online collaboration.

5.4 Limitations and Challenges Encountered during the Study

This study was limited to Public Universities in Nairobi that offer Online, Distance and e-learning courses. A number of Public Universities in Nairobi have not incorporated e-learning as a mode of study, therefore limiting the study to only a few Universities. A more extensive research can be carried out incorporating all Public and Private Universities that use e-learning as a mode of study. One of the challenges experienced during the study was the lack of adequate answers from some of the respondents. A large number of respondents also did not return the questionnaires, even after follow-up. These issues can be mitigated by incorporating Web 2.0 tools during lectures in Universities, in order for both students' and lecturers to be conversant with use of the tools.

5.5 Recommendations and Further Research

The findings from this study show that both students and lecturers are conversant with Web 2.0 tools and look forward towards their integration in e-learning in Universities. Further research may include comparative studies between public and private Universities in Kenya, on their adoption and use of Web 2.0 tools. Research can also be conducted on a variety of open source and Open Educational Resources (OER) and the value they add in e-learning in Kenyan Universities, for example, adaptation and use of Massive Open Online Courses (MOOCs).

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http://wikieducator.org/WikiEducator:About

APPENDIX 1: QUESTIONNAIRE FOR STUDENTS

This aim of this Questionnaire is to collect information on the use of Web 2.0 tools in e-learning in Kenyan public Universities. The information is required for academic purposes only and will be treated as confidential.

Section A: Background

1. Age bracket

      a. Below 20 years [   ]
      b. 20-25 years   [   ]
      c. 26-30 years   [   ]
      d. 31-35 years   [   ]
      e. 36-40 years   [   ]
      f. Above 40 years [   ]

2. Gender

      a. Male   [   ]
      b. Female   [   ]

3. Name of University: _____

4. Programme and year of study (eg. BSc. IT, Year 2): _____

5. Experience in using Web 2.0 tools (Social networks, Podcasts, Blogs, Wikis, Social

   bookmarking)

    ◯ Experienced (I am conversant with Web 2.0 tools)
    ◯ Beginner (I recently started using Web 2.0 tools)
    ◯ No experience (I have never used Web 2.0 tools)

Section B: Use of Web 2.0 tools

Definition of Web 2.0 tools

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
Social bookmarking	Used for storing bookmarked pages on a Public website, which can then be accessed from any computer on the Internet, and shared with others
Blogs	A regularly updated website showing discussions (posts) which users can read and interact with
Wikis	A website that allows for collaborative writing of documents, capacity building, free content development and establishment of community networks.
Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

6. To what extent are Web 2.0 tools used for online learning?

[Not used at all=1, Little extent=2, Some extent=3, Great extent=4, Very great extent=5]

◯ Very great extent
◯ Great extent
◯ Some extent
◯ Little extent
◯ Not used at all

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
Social bookmarking	Used for storing bookmarked pages on a Public website, which can then be accessed from any computer on the Internet, and shared with others
Blogs	A regularly updated website showing discussions (posts) which users can read and interact with
Wikis	A website that allows for collaborative writing of documents, capacity building, free content development and establishment of community networks.
Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

7. Please indicate whether the following tools are used for online learning: [Never=1, Very rarely=2, Occasionally=3, Frequently=4, Very frequently=5]

Tools	Never	Very rarely	Occasionally	Frequently	Very frequently
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
Social bookmarking	Used for storing bookmarked pages on a Public website, which can then be accessed from any computer on the Internet, and shared with others
Blogs	A regularly updated website showing discussions (posts) which users can read and interact with
Wikis	A website that allows for collaborative writing of documents, capacity building, free content development and establishment of community networks.
Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

8. Please indicate the social network site(s) you use for online learning:

◯ Facebook
◯ Twitter
◯ LinkedIn
◯ Tumblr
◯ YouTube

Others (Please specify)

_____

_____

_____

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
Social bookmarking	Used for storing bookmarked pages on a Public website, which can then be accessed from any computer on the Internet, and shared with others
Blogs	A regularly updated website showing discussions (posts) which users can read and interact with
Wikis	A website that allows for collaborative writing of documents, capacity building, free content development and establishment of community networks.
Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

9. Performance Expectancy – The following tools aid in expanding knowledge/gaining new knowledge

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
Social bookmarking	Used for storing bookmarked pages on a Public website, which can then be accessed from any computer on the Internet, and shared with others
Blogs	A regularly updated website showing discussions (posts) which users can read and interact with
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Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

10. Effort Expectancy – The following tools are easy to use:

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
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Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

11. Social influence- Others (For example, Friends, Colleagues etc.) use the following tools for online learning:

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Web 2.0 Tools	Definition
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Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

12. Facilitating conditions- The University provides for use and (or) technical support for the following tools:

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
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Mashups	A website that integrates content from two or more web pages
Podcasts	Pre- recorded audio and video files that can be downloaded from the Internet

13. Voluntary use- It is NOT mandatory to use the following tools in online learning:

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Others (Please specify)

_____

_____

_____

14. Please indicate the challenges experienced when using these tools:

	Challenge	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
a	Lack of adequate knowledge in using the tools					
b	Slow internet connectivity					
c	Lack of motivation in use Web 2.0 tools eg. Blogs, Social networks					
d	Learner's attitude towards integration of Web 2.0 in e-learning					
e	Lecturer's attitude towards integration of Web 2.0 in e-learning					
f	Communication difficulties (due to the high number of users of these tools)					
g	Difficult to sift through the amount of information available in order to decide on what is relevant (eg. when using blogs and social media for learning)					

Others (Please specify)

_____

_____

_____

15. Please indicate the factors influencing the use of Web 2.0 tools in online learning: [Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Performance expectancy (The tools aid in expanding knowledge/gaining new knowledge)					
Effort expectancy (The tools are easy to use)					
Social influence (Other people known to me use these tools)					
Facilitating conditions (The University provides for their use and technical support)					

APPENDIX 2: QUESTIONNAIRE FOR ONLINE FACILITATORS

The aim of this Questionnaire is to collect information on the use of Web 2.0 tools in e-learning in Kenyan public Universities. The information is required for academic purposes only and will be treated as confidential.

Section A: Background

1. Age bracket

    c. Below 20 years [   ]
    d. 20-25 years   [   ]
    e. 26-30 years   [   ]
    f. 31-35 years   [   ]
    g. 36-40 years   [   ]
    h. Above 40 years [   ]

3. Gender

    a. Male   [   ]
    b. Female   [   ]

3. Name of University: _____

4. Faculty/School: _____

5. Experience in using Web 2.0 tools (Social networks, Podcasts, Blogs, Wikis, Social

   bookmarking)

    ◯ Experienced (I am conversant with Web 2.0 tools)
    ◯ Beginner (I recently started using Web 2.0 tools)
    ◯ No experience (I have never used Web 2.0 tools)

Section B: Use of Web 2.0 tools

Definition of Web 2.0 tools

Web 2.0 Tools	Definition
Social networks	A website of social interactions that enables users to create a profile, interact and connect with others
Social bookmarking	Used for storing bookmarked pages on a Public website, which can then be accessed from any computer on the Internet, and shared with others
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6. To what extent are Web 2.0 tools used for online training?

[Not used at all=1, Little extent=2, Some extent=3, Great extent=4, Very great extent=5]

- ◯ Very great extent
- ◯ Great extent
- ◯ Some extent
- ◯ Little extent
- ◯ Not used at all

Web 2.0 Tools	Definition
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7. Please indicate whether the following tools are used for online training:

[Never=1, Very rarely=2, Occasionally=3, Frequently=4, Very frequently=5]

Tools	Never	Very rarely	Occasionally	Frequently	Very frequently
Social networks					
Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

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8. Please indicate the social network site(s) you use for online training:

○ Facebook
○ Twitter
○ LinkedIn
○ Tumblr
○ YouTube

Others (Please specify)

_____

_____

_____

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12. Facilitating conditions- The University provides for use and (or) technical support for the following tools: [Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

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[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

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Social bookmarking					
Blogs					
Wikis					
Mashups					
Podcasts					

Others (Please specify)

_____

_____

_____

14. Please indicate the challenges experienced when using the following tools:

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Challenge		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
a	Lack of adequate knowledge in using the tools					
b	Slow internet connectivity					
c	Lack of interest in use Web 2.0 tools eg. Blogs, Social networks					
d	Privacy concerns, for example, disclosure of personal information that may include personal profiles, preferences etc					
e	Providing quality content					
f	Stimulating learner interest and collaboration					
g	Learner's attitude towards integration of Web 2.0 in e-learning					
h	Lecturer's attitude towards integration of Web 2.0 in e-learning					
i	Communication challenges (due to the high number of					

	users of these tools)					
j	Difficult to use these tools to provide relevant content (eg. when using blogs for training, posting content on social networks, etc)					

Others (Please specify)

_____

_____

_____

15. Please indicate the factors influencing the use of Web 2.0 tools in online training:

[Strongly disagree=1, Disagree=2, Undecided=3, Agree=4, Strongly agree=5]

Tools	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Performance expectancy (The tools aid in expanding knowledge/gaining new knowledge)					
Effort expectancy (The tools are easy to use)					
Social influence (Other people known to me use these tools)					
Facilitating conditions (The University provides for their use and technical support)					

Thank you!